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WE HOPE YOU LIKE the "face lifting" program that is started in this issue. No radical changes are contemplated, but the pressure for space has eased to the point that once again we feel justified in devoting some of the JOURNAL'S area to eye-appeal.

During the days of training the expanded army, and while we were fighting a two-front war, it was most important that your JOURNAL make available to you as much training and combat information as possible, at the earliest possible moment. To that end every available square inch of paper surface was devoted. Something had to suffer, of course; in this case it was graceful appearance of our pages.

There is now no change in our primary mission of aiding in every possible way troops in combat or who are headed for it. At the same time we can once again work toward the more attractive format of pre-war days. Changes will be gradual. And, to repeat, we hope you like them.

IN MONTHS TO COME we shall continue to cover the Pacific war to the fullest extent that fighting conditions permit. It is our policy to publish primarily articles written by participants themselves. Such accounts have the greatest authenticity, as well as local color. Times of great activity, however, reduce the flow of material to us. But we will continue to bring a considerable number of Pacific combat narratives, both for the sake of those engaged and for the benefit of you who are headed for the Far East.

We also will continue covering the European war, now ended. Many of the former security restrictions have been removed. You may now tell your stories fully and completely, naming units and persons, places, movements, etc., "giving the devil his due" as well as making your material of greater interest to all artillerymen. Our thanks for your help.

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The Field Artillery Journal

JULY, 1945—Vol. 35, No. 7

HONOR TO LESLEY J. McNAIR 386
WEBFOOT ARTILLERY ..... By Lt. Col. Bernard S. Waterman, FA 387
LEYTE LIAISON ..... By Lt. Charles C. Sheahan, FA 391
THE KURILE ISLANDS ..... By Col. Conrad H. Lanza 392
CONTROL OF DIRECTION AT EXTREME HIGH ANGLES OF ELEVATION 395
TANK DESTROYERS AT WORK—WITHOUT THE BOOK ..... By Lt. Col. R. L. McNelly, FA 396
PROPER USE AND ABUSE OF TANK DESTROYERS ..... By Lt. Eugene T. Oborn, FA 398
POST-WAR RESERVE OFFICER POLICIES 400
COORDINATION OF AIR OPs ..... By Lt. Col. Frederick C. Shepard, FA 402
ARTY/R AGAIN ..... By Lt. Col. C. V. Clifton, FA 404
F.A.S. EVENTS 405
ARTILLERY'S PART IN THE BASTOGNE BREAK-IN ..... By Capt. John H. Merriam, FA 407
ROUTE RECONNAISSANCE—THE HARD WAY ..... By S/Sgt. Raymond W. O'Connor, FA 408
THE 19TH SHELLHOLE ..... By Capt. Robert Edgren, FA 409
4.5-INCH BATTALION FIRE DIRECTION IN COMBAT ..... By Maj. John T. O'Keefe, FA 411
TRENDS IN FIELD ARTILLERY ORGANIZATION AND EQUIPMENT
Maj. Shirley B. Metzger, FA, and Maj. Irvine F. Belser, Jr., FA 412
A DEFLECTION FAN THAT MASSES FAST ..... By Maj. Robert H. Cronin, FA 413
MODERN ARTILLERY TACTICS
By Maj.-Gen. H. Rowan-Robinson, C.B., C.M.G., D.S.O. 414
OKINAWA HOLE-INS 416
PERIMETERS IN PARAGRAPHS ..... By Col. Conrad H. Lanza 417
"NOW THEY CAN BE TOLD" 431
GERMAN SELF-PROPELLED MOUNTS ..... Adapted by Lt. Col. G. B. Jarrett, Ord. 432
VI CORPS ARTILLERY COMMUNICATIONS ..... By Capt. Harry M. Foos, Jr., FA 435
DAWN OF A NEW ARTILLERY ERA ..... By Maj. J. R. Murland 437
NOT IN THE BOOK 438
DIARY OF WAR EVENTS 439
BOOK REVIEWS 440

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MAY 25 1888
JULY 25 1944
LESLEY J. McNAIR
LIEUTENANT GENERAL
UNITED STATES ARMY
AS COMMANDING GENERAL OF THE ARMY GROUND FORCES HE PLANNED ORGANIZED TRAINED AND EQUIPPED THE GROUND FORCES OF THE UNITED STATES FOR THEIR VICTORIOUS PARTICIPATION IN THE SECOND WORLD WAR
WHILE AT THE FRONT IN NORMANDY WITH THE TROOPS HE HAD PREPARED FOR THE REALITIES OF BATTLE HE WAS KILLED
TO COMMEMORATE THE QUIET THOROUGHNESS OF THIS OUTSTANDING SOLDIER THIS MEMORIAL IS DEDICATED BY THE OFFICERS OF THE ARMY GROUND FORCES

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H. Hodges, commander of ou
First Army. The plaque, give
by officers of the Army Groun
Forces, was unveiled by Bonn
Clare McNair, the late general
granddaughter. Mrs. Lesley
McNair, recently returned fro
a European mission for the Sta
Department, was present.

LCM being unloaded at Calubian, Leyte, in dull weather.

Webfoot Artillery

By Lt. Col. Bernard S. Waterman, FA

Spurred by necessity, our armed forces have developed amphibious warfare to a level beyond the wildest dreams of military men of a few generations ago. Each operation has resulted in such improvements in technique that our early Pacific efforts now seem very clumsy things indeed, compared with the clock-like precision of the Okinawa landing. Nevertheless, the artilleryman's problem, especially insofar as medium and heavy artillery are concerned, has yet to be reduced to a formula which will fit all cases.

For a good understanding of more recent developments, it is well to go back to the beginning of our amphibious career on the shores of Hawaii.

Several very fine amphibious training centers have been established in the Hawaiian Islands. Their preoccupation has been with the landing of infantry, and to some extent the landing of artillery in small craft. Their observers have been present at each new operation to gather new ideas and seek solutions to old problems, but when our battalion of Long Toms began preparing for Saipan little doctrine was available in the Central Pacific on the landing of artillery from LSTs.

On a day in April, 1944, we received instructions to the following effect: "Here's an LST. Load 'er up and go on down to Maui, and see what you can do." After much scholarly deliberation on what equipment we would like to have, and in what order we would like it to come off, we loaded a couple of batteries and sailed blithely off to Maui. Promptly on schedule the following morning we glided gently into a bright sandy beach, dropped the ramp almost on dry land, and proceeded to unload with the usual minor bumbling to be expected on a first rehearsal. During the afternoon we reloaded, and the following morning we repeated the maneuver. We came away feeling confident that we knew all about landing from an LST.

Came Saipan, and we were confronted with a set of circumstances which we had not been able to rehearse. The landing beach was fenced off with a reef some three or four hundred yards from shore, with an intervening lagoon which varied in depth from a foot and a half to five feet. Our tribulations were legion. The points which impressed themselves most deeply on us were these: (1) Know your lagoon—time spent in careful reconnaissance for the shallowest route across it and in waiting for the minimum tide, will be well invested; (2) do not attempt to drive small vehicles ashore: load the ¼-ton jeeps in Alligators and tow the ¾-tonners behind bulldozers; (3) at the earliest possible moment, service all vehicles which have been in the water.

Another difficult aspect of the Saipan problem, and one which was later to prove as difficult on other beaches equally as renowned, was the unloading of large quantities of artillery ammunition, gasoline, water, rations, and sundry other supplies. Both manpower and transportation were at a premium, since the T/O makes no provision for the large ship's platoon needed to accomplish the work, and no vehicles but the DUKWs and Alligators could make the run from ship to shore. Alligators were seldom available, but the DUKW company bore the brunt valiantly.

As an ammunition carrier the DUKW is scarcely ideal, despite its inestimable value as an all-purpose amphibious vehicle; because there is no tail gate, every 95-lb. round of ammunition must be lifted high overhead to place it in the DUKW. Nor does palletizing solve this problem, for while a pallet can be lifted above the DUKW by a finger lift, there is no way to set it down in the body. The Alligator with the drop seat appears to meet the requirements best, for when this rear ramp is lowered a man can easily walk into the body and place a round of ammunition on the floor. These vehicles should be available in large numbers to unload ammunition from LSTs.

To obtain the maximum efficiency in the employment of amphibious vehicles under such circumstances a dump should be established just behind the beach, where the loads can be transferred to land transportation. This of course involves extra handling, but unless you can afford to have amphibious vehicles tied up on long overland runs it must be done. Furthermore, the current tendency is to bar Alligators from the roads as soon as the situation permits, because of their destructive effect on the roadbeds.

After Saipan came Leyte, where we anticipated little difficulty because we were not in the assault and there was no reef problem to face. This merely serves to illustrate the old cliche that things are never quite what they seem. To elucidate the point we will quote an observer who arrived on Leyte on an LST in the assault echelon: ". . . The LST lowered its ramp, and the first bulldozer rolled out and disappeared in eight feet of water." Innocent though it appeared, this beach had a sandbar which stopped the incoming LSTs short of shallow water.

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On our arrival at Leyte we too came up against this difficulty, plus the additional complication of heavy surf—a condition which may be expected on the eastern shore of most Pacific islands. The problem was partially overcome by per-

An overturned Jap truck temporarily blocks a DUKW-load of cavalrymen spearheading the Leyte invasion.

suading LST skippers to make a flank speed approach at maximum high water, thereby shoving themselves a bit higher up onto the shore, and then waiting until low tide to unload. This takes a good deal of persuasion, because the paramount fear of LST skippers is that once having rammed themselves high up onto the beach they will not be able to pull off. This is not so serious as it seems, though, since there are usually Navy tugs available to pull them off if they cannot do so under their own power.

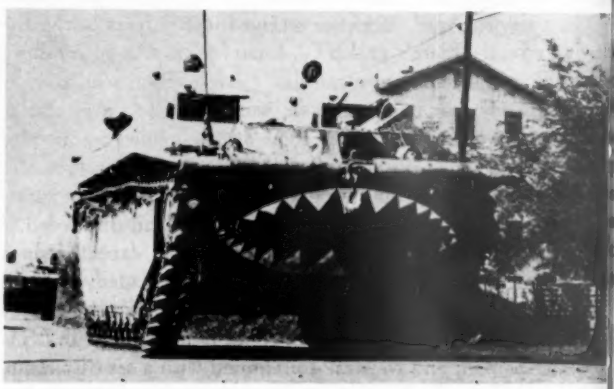
Resorting to the above method, we unloaded guns and vehicles, though not very rapidly, because every wheeled vehicle had to be hooked to a winch cable from a tractor ashore before starting out. Although the average depth of water at the end of the ramp was not very great at low tide, high rollers repeatedly washed up over engine hoods, and (waterproofing or no waterproofing) a vehicle will not continue to run under such conditions.

Another important little point is that where there is enough wave action to move the ship or the ramp the end of the ramp will soon wear a deep hole on the bottom. For this reason the ramp should be kept somewhat raised except while a vehicle is being run off.

The anticipated leisurely unloading and reconditioning of equipment did not materialize, for no sooner were a few guns ashore than orders were received to send a battery forward to relieve a Marine artillery unit in the lines. This involved a move some twenty miles north and ten miles inland. The road north was impassable, and the beach is cut every few miles by inlets which are too deep to traverse. These inlets were later bridged, but at the time there was no alternative to an amphibious move. The battery was therefore loaded in LCTs. This proved to be quite a task. The first LCT which attempted to beach ran afoul of the sandbar, broached, and was compelled to wait for the tide to pull her off. It was soon discovered that under the prevailing surf conditions the only way to get an LCT squarely on the beach and hold her there was to spot tractors on either flank of the beaching point, and run cables from them to the securing bolts on each side of the bow. The loading took nearly two days to complete.

One LST with which we were charged with unloading contained a full tank deck load of gasoline in 55-gallon drums. A few futile attempts soon convinced us of the impracticability of using 2½-ton trucks between ship and shore in the high surf; the job had to be continued with DUKWs, but the overhead clearance in the tank deck is insufficient to permit the use of an A-frame and barrel chimes to load the drums in DUKWs. Our solution was to roll a number of drums onto the elevator, raise the elevator to the level of the DUKW body, and roll the drums into the vehicle. This was necessarily very slow, and after several days the Navy became impatient to withdraw from the beach. We were finally compelled to roll the remaining drums down the ramp and into the surf. This is not a recommended procedure. Men get hurt trying to get the heavy drums ashore, and many drums are washed out to sea.

As the time approached for loading out for Okinawa every organization which expected to load LSTs began to formulate plans to facilitate loading. Beaches were reconnoitered to find those with the best slopes, and two divisions constructed loading piers a short distance out into the water. The piers were of pile construction, and seemed at first blush to be the "A" solution—but such are the vagaries of Nature that she seldom misses an opportunity to help the plans of men go astray. One



The famed "Flying Tigers" may have inspired the art work on this LVT which is about to bite the Nips in Manila.

division soon found that its piers were the least bit too long, so that LSTs which approached them remained afloat. The rise and fall of the ship in the surf would soon beat the bow ramp or the pier (or both) to pieces, and the idea was abandoned. Another division had more success, having constructed shorter piers, though whether by accident or design is not known. LSTs were able to ground at the proper point so that ramps could be lowered onto the piers, and loading was greatly speeded.

The delicate calculation involved can readily be seen, for if the LST grounds too soon its ramp will not reach the pier, and if it does not ground the above-described condition will occur.

During the Leyte phase of our webfooted adventures the writer relinquished command of his Long Tom battalion, and was assigned to command a group consisting at that time of three battalions of medium artillery. This broadened somewhat the scope of opportunity for observation of various loading problems, since we tried a number of schemes for loading

our numerous ships. Nevertheless, the loading of the 155-mm howitzer does not present the problems of the Long Tom since it is much lighter and more maneuverable. It was noticed, however, that the new limber on the Long Tom has greatly improved the ease of loading and unloading, as it gives the trails more road clearance and reduces the tendency of the gun to hang up astride the hump in the bow entrance.

First attempts to load the group were begun by beaching the ships off our bivouac area. We were assigned three LSTs and three LSMs to lift the group. The sandbar had apparently grown in the interim since unloading, as the first LSTs to approach, though running at full tilt, came to a very sudden halt so far offshore that they could be reached only by DUKW. A causeway was constructed to one LST, using pontons. Seas had been consistently heavy, and so violent was the wave action on these pontons that vehicles could not be run across them. The pontons were then filled with water and permitted to sink, and some equipment was loaded across them, but the continuous surf motion soon caused them to settle so deeply in the sand bottom that the water over them was too deep for further operations. The battalion commander was fortunate enough to obtain the use of a serviceable pier five miles south; the loading was thus completed very rapidly.

Loading plans provided for covering the entire tank deck of each LST with artillery ammunition, which was then decked over with dunnage to carry the usual vehicle load. Other battalions commenced loading ammunition, dunnage, and other supplies, using DUKWs to traverse the wide expanse of water between beach and ship. This method was slow and difficult. Many times DUKWs were compelled to make several approaches before they could mount the ramp of the LST, the heavy surf repeatedly swinging them away. The surf took a heavy toll of DUKWs swamped or capsized.

During the Leyte period we lost the DUKW company which had been attached to the Corps Artillery. To compensate for this a number of DUKWs were issued directly to the artillery units. The disadvantages of this procedure are readily apparent when it is considered that the T/O scarcely provides sufficient personnel to drive and maintain T/O & E vehicles. Worse still, some of the DUKWs issued had been reclaimed from salvage, and should have been equipped with oarlocks and a tin can for bailing to insure efficient operation.

About eight miles north of our bivouac area there was an abrupt change in the character of the shoreline. Here the slope of the beach was such that an LST could accomplish a nearly dry-ramp landing. It was finally decided that despite the 8-mile haul the loading could be completed there more rapidly than at our own beaches. The ships were moved north for completion of the loading. Even here, however, it was necessary to stop work for several hours at high tide.

Now a word for the LSM. This new little ship, which fits into the scale between the LST and the LCT, proved ideal for lifting a battery. The space is just adequate for the guns, prime movers, and vehicles of one battery, and the shallower draft permits good beaching under unfavorable conditions. The only real drawback noted in this operation was that most of the personnel aboard suffered acute seasickness as the tiny ships rolled through the rough seas between Leyte and Okinawa.

It will perhaps help to clarify the picture in the reader's mind if we pause now to summarize the results of our observation of loading operations at Leyte. It is apparent that the major obstacles were high seas and poor beaches. The former can be substantially overcome on most Pacific islands by conducting loading operations on the west shore. Construction of piers in the quiet protected waters of a lee shore will

Shermans debarking from . . .
. . . an LST at Anzio *. . . . an LSM at Leyte.*

dispose of the latter. If good beaches can be found even at a distance from bivouac and dump areas, their use will prove economical of time and equipment despite long hauls.

Okinawa showed us that the more we learn the more we have to learn. Again the beaching conditions were different from any we had previously experienced. This time, however, the differences were mostly for the better. The usual reef was there all right, but when the tide went out, lo and behold, it was completely dry. The principal difficulty was the inability of LSTs to approach close enough to the reef to lay the ramps on the shallowest part of the reef. A small gap existed in which the water was four and a half feet deep at high tide. Most vehicles were able to unload and roll across the reef at low tide, but we were forced to suspend the unloading of ammunition and supplies as the water rose, except when DUKWs were available. A full speed approach at high tide might have permitted LSTs to reach a point where the ramp could reach the shallow reef shelf, but the risk of staving in the bottom on the sharp coral was too great. The solution indicated was the use of a ponton causeway unit. One of these pontons could have been pushed up onto the reef shelf and used as a bridge between ship and reef. It was noted that this was done at a nearby beach, and appeared to be working satisfactorily.

As is the usual case, ¼-ton jeeps were unable to negotiate the deep spot at the end of the ramp. This problem seldom causes much trouble, particularly when the water is shallow enough to permit a 2½-ton truck to operate. The truck can be backed up to the ramp and a jeep run directly into the body for the trip ashore.

LSMs proved very sucessful under these beaching conditions. Their shallower draft permitted them to approach close enough to the reef so that every vehicle was able to proceed ashore under its own power.

As an interesting sidelight it may be well to mention that while unloading an LST one of our M-5 tractors drove into a pothole and vanished from sight. This serves to underscore the need for carefully marking out a path from the ramp to dry land.

Our plan for putting reconnaissance parties ashore has now become pretty well standardized. We load a ¼-ton jeep in a DUKW, together with such equipment as is needed by the reconnaissance party. This DUKW is launched as soon as the situation permits the landing of reconnaissance elements. This saves a good deal of time in many cases, because LST skippers will not beach their vessels until they have received orders from the group commander and often not until they have received a signal from the beach control boat as well. With the large number of vessels in the transport area this may take a considerable time, so reconnaissance parties may gain half a day or more by landing without waiting for the ships to beach. DUKWs must be equipped with A-frames for removing the jeeps ashore, and various battalion reconnaissance parties must plan to meet and lift each other's jeeps because the A-frame on a DUKW cannot be used to lift a jeep out of its own body.

At Okinawa we were fortunate enough to be equipped with weasels. These added greatly to the mobility of the reconnaissance elements. Our ships were brought close inshore to launch the parties, and the water was calm. We were thus able to bring the Weasels ashore at once. Under no circumstances should the Weasels be launched unless those conditions pertain, for they have so little freeboard that the least bit of surf will swamp them. Once ashore they are invaluable for traversing swamps and rice paddies, and laying wire cross country in lowland areas, but they will not last long if used on rough and rocky terrain.

Little has been said about the use of small craft for landing artillery, but this is not a subject to be passed over lightly in view of observed results. It was noted at Saipan that the first artillery ashore was put there, not by LSTs, but by small craft unloading the larger shipping. An LCT will carry approximately three 155-mm howitzers or two Long Toms with prime movers, and an LCM will carry a howitzer and prime mover. These craft, particularly the LCM, will often be able to pass through a breach in the reef and place a gun on dry land. Since the writer has had no experience with the problems of unloading artillery from transports into small craft a detailed discussion of the subject is better left to someone more qualified.

An outstanding feature of modern amphibious warfare is the thoroughness of preliminary under-water reconnaissance. The methods by which this is accomplished are perhaps not open to discussion at this time, but it is sufficient to mention that on the evening of L- while we were still at sea off Okinawa a courier vessel drew alongside and delivered a chart showing in greatest detail the reef outline and characteristics and a complete verbal description of all beach approaches.

LSMs are fine for transporting heavier artillery. Shown here are 8-inch howitzers.

LEYTE LIAISON

By Lt. Charles C. Sheahan, FA

Artillery Adjustment

A smoke round was fired initially. In jungle growth it often took two minutes for the smoke to rise above the trees.

Most fires were adjusted by sound. Defensive fires should be fired as soon as patrols are in—this helps keep the Japs from moving in under it.

It's desirable to get all FOs together, if possible, and have all of them share the adjustments. Not only is this a lot of fun, but everyone thus knows the score (concentration numbers, where, etc.).

The extent and amount of fire felt necessary for the night should be given to the S-3 with suggestions for firing. S-3 figures out a time schedule to fit into the "big picture." Conservation of ammunition is a consideration, since firing through the night may or may not be falling on the enemy. But it keeps the Japs away, and only the one who has been on the edge or even in the middle of a perimeter at night can fully understand the comfort of shells whistling through the night, and then a WHAM. The S-3 can make an effort to have schedule giving the gunners a little well-earned rest. 0230 to 0500 was the most active time the Japs annoyed the perimeter. All fires, of course, are on call.

General Operating Procedure and Attitudes

In fighting the Japanese, our tactics are to draw into a perimeter for the night. FOs should be spread out in the perimeter to cover all fronts . As soon as possible wire should be laid between FOs and the LnO, with a line to the Inf switchboard (party line). This makes all available to the Inf Co, each other, and possibly FDC. Such a set-up has definitely paid off, especially at night when moving above the ground leads to the clicking of "safeties" becoming unsafe. Only one radio need be on, to conserve batteries. The ringing of the dulled telephone bell for discussion has the good result of keeping a man "on the ball" in each section.

FO sections operating with small patrols in very active areas should be avoided. Small patrols meeting resistance deploy as infantrymen, the artillerymen at times finding themselves on their own. LnOs should strive to have FOs go with at least two reinforced platoons.

Teamwork

The job of the liaison officer is to see that the Inf gets the support it wants. To accomplish this there must be smoothness among the forward officers. It calls for teamwork in the form of complete submission of all to the common aim. A domineering liaison officer makes himself conspicuous by his too authoritative actions, leading to possible resentment by his FOs. The LnO is the boss, however, and runs the show as head of the team.

Leyte support included M-7s.

There is such a thing in the army as "bucking for points." In most cases it's people with good intentions overdoing their jobs. It is possibly an admirable trait, but it leads to the effect of too many cooks. Anyone who starts rushing information to FDC without informing the LnO, or informs the Inf Co of things pertaining to the "big picture" of artillery support without working with the LnO, is a great source of possible confusion. It's not that the FO shouldn't send information back—he should have a free hand to send information as the partner he is of the LnO. It's the calmness in working together that leads to excellent results.

Relief

Relief of FOs and LnOs will be influenced by the terrain and amount of enemy activity. FOs should be relieved more often than the LnOs, since the latter is more of an infantry staff officer by the very nature of his position. It is amazing how the tension of combat brings on tension between the men. Men that are kept going all day and kept awake by mortar rounds at night begin to get weary and sullen. Soon there is bickering among them over trivial, childish things. They worry whether the Battery First Sergeant is holding their amount of PX cigarettes or whether he is hiding them in his tent and smoking four of them at a time. They get annoyed with each other over minor things that would go unnoticed at other times. It is not serious, but it becomes apparent what Special Services can do to make themselves of great help.

When terrain is very difficult and units are separated by long distances, relief should be less frequent because the trip back and forth is often more of a wear than staying on a while longer. Very short stays (a day or two) in the Arty Bn area and a return to the Inf can be appreciated, but they are not too much of a relief. The Arty area is often as much the front as the so-called "up front."

When down in the Bn area, sections should be informed of a move the morning they are to move back. If told the night before, the thought of equipment to carry, means of transportation, what has to be done, etc., has a tendency to cause unsound sleep.

THE KURILE ISLANDS

By Col. Conrad H. Lanza

Northernmost of the Japanese islands, the Kurile Islands stretch nearly 700 miles from Hokkaido of the main Japanese islands in the south to Kamchatka in the north. Their axis is southwest to northeast. The great circle route from Puget Sound to Japan passes very close to them.

Their name is derived from the Russian word *kurit,* "to smoke." All islands are volcanic and some contain active volcanoes steadily emitting smoke. The active volcanoes are of the explosive type and are renowned for their spectacular splendor, which surpasses anything in Japan proper.

Prior to 1875 the islands were Russian. At Russia's "suggestion" they were traded to Japan for Saghalien. Their Japanese name is Chi-Shima, meaning "a thousand islands." There probably are that number of islands if islets and rocks are counted, but there are only 47 of more than half a square mile in area and only 22 of any importance.

The Kuriles have a total area of about 4,000 square miles. Permanent population according to the 1940 census is under 19,000, excluding military personnel. The residents are generally engaged in fishing and canning, plus care of ports and usual utilities. Fishing is largely done by the 30,000 or more transients who annually visit the Kuriles and return to Japan at the close of the season (April to November).

Fishing is extraordinarily good, particularly in the north and south; it is less so in the center, where on account of deep water there is little food for fishes. Salmon are taken in huge quantities, together with herring and a local crab caught in nets (in addition to those enclosed, crabs hang onto outside of nets). Salmon-trout are caught in local streams. Seals and sea otters are captured for their fur. On land fur bearing foxes are numerous, also large bears resembling the American grizzly bear and supposed to be its ancestor. The only other resource which is exploited is sulphur, mined around volcanoes. There are indications of other minerals but none of these has yet been reported as developed.

The climate is generally damp and cold, the ground at no time becoming thoroughly dried. Rainfall ranges from 40 to 50 inches yearly. A cold sea current from the Bering Sea follows the coast, while a warm current flows in the opposite direction further out in the Pacific. This combination causes an excessive number of foggy days. This fog is unusually dense, and often impedes navigation. As a rule the fog lies on only one side of the islands, the lee side being clear. Most fogs are in the summer, with a maximum record of 26 days in July and 20 in August.

Ice is an obstacle to landings on the west side of the northern part of the Kuriles. It comes from the upper part of the Sea of Okhotsk, and appears in noticeable fields at the end of January. Depending upon the season, it reaches thicknesses of 12 to 30 feet, excluding snow. This ice is not entirely melted until the end of May.

First frosts and snow occur in September, last ones in June. There are thus only about three months—from 15 June to 15 September—when freezing weather may not occur. The spring months are cold, with sharp winds. Cold weather is normal, but there is no excessive cold—the thermometer seldom goes below 0° F. Severe storms may occur at any time but are most frequent during the winter. Best season for invasion landings is from September to November, both inclusive. During that period there are many fine days, fogs are less numerous, cold is not too great, and gales and storms may not appear.

While all islands are volcanic, they are of two distinct types —round islands and long islands. The round ones are a volcano (which may be active or inactive) with a general conical shape. Due to the action of waves the base of the cone is usually washed away, leaving nearly vertical bluffs rising out of the sea. They are hard to land on. Most of the round islands are of minor importance.

The long islands consist of a number of volcanoes which in course of time have deposited enough matter to connect themselves into a group, where the volcanoes rise above intervening low country. Like most volcanic soils, the low ground is highly fertile, and truck gardens are common in some of them.

These long islands have beaches suitable for invasion; a number have ports (developed for the fish and can industry) which could be used to advantage. Opposite the low ground sand dunes have been built up in some places. As often happens, back of the dunes there is not infrequently marshy terrain or lakes. In the Kuriles these lakes are generally subject to tidal influences, notwithstanding absence of a direct communication with the sea.

From Uruppu (inclusive) southward the islands are well wooded. North of Uruppu there are no woods, but scattered trees of a hardy nature are found.

The Kuriles are a bleak and, for white races, an undesirable land. They are not unhealthy. Diseases common to a rainy climate, and possibly to water supply, should be expected. On account of the heavy rainfall, fresh water is abundant, and would probably be ample for any invasion parties.

The South Kuriles

There are three main islands, all of the long and wooded type. *Kunashiri* lies 12 miles off the northeast end of Hokkaido, separated from it by Yezo Strait. This navigable strait is covered by batteries. In some winters ice blocks the channel.

Kunashiri is 66 miles long and varies in width between 6 and 16 miles. At the north end is the active volcano of Chachi

dake, a truncated cone 6,051 feet high rising out of a lower but larger volcanic cone. It is a magnificent landmark. Just to the south is another volcano (Ruruidake) connected by a ridge and rising to an elevation of 4,940 feet. At the south end is another but lower mountain range with its highest volcano (Shimanobori—2,933 feet) at the north end. Between the two mountain ranges low ground stretches across the island. The south tip consists of hills and marshes. There are numerous fresh water lakes and salt marshes.

The west coast is steep and generally unsuitable for invasion landings. The east side has a number of beaches, separated by precipitous bluffs. All coasts have numerous rocks off shore. There are no ports, but several open bays are available where ships can anchor; all of these are on the east side.

Area of Kunashiri is 440 square miles, with a permanent population of about 5,600. Principal settlement is Tomari, at the extreme south end and the local capital. Other villages are scattered along the east side; some of them have small piers for fishing boats and which could be used by small types of landing craft.

Kunashiri, the nearest island to the main Japanese islands, has ample ground for airfields. It is less than 600 miles from Tokyo. The woods afford considerable cover for establishment of dumps, shelters, etc. Disadvantage is absence of good harbors. There are no local resources except timber and fish.

Shikotan is 35 miles out to sea from Kunashiri. It is at the end of a series of smaller islands, islets, and rocks extending northeastward from Cape Nemuro on Hokkaido. This island is 16 miles long and 6 wide. There are two volcanic masses (both inactive) at the ends, with low ground about 6 miles wide by 3 miles in between. At the north end is Shakotan (local capital) on a good bay. Lesser bays—but suitable for landings—are at the southeast end. There are coves all around the island; while their shores are generally precipitous, sand beaches are usually available at their heads.

Area is just under 100 square miles, and population 1,500. Shikotan was the reservation island for the Ainus, who were the original inhabitants of the Kuriles. Some Ainus intermarried with Japanese; those who had not were removed to Shikotan many years ago, and are now approaching extinction.

Shikotan has facilities for airfields, which would be about the same distance from Tokyo as the larger Kunashiri's. It has the advantages of being smaller and more easily held and of having several small ports. Disadvantages are heavy fogs in summer and much ice off shore in winter.

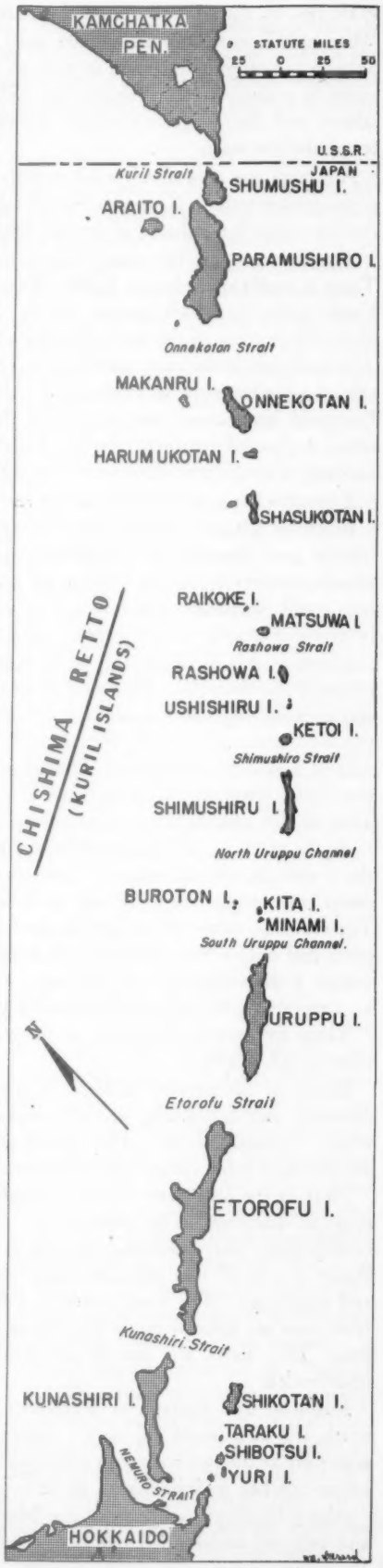
Etorofu is the largest Kurile Island, having an area of 930 square miles. It is 110 miles long and 2½ to 20 miles wide. Population is about 5,000. This island is unusually densely wooded in the interior. There are eight detached groups of volcanoes with elevations of between 3,000 and 5,000 feet, separated by low, flat lands. As many as 5 volcanoes may be active at the same time.

The east coast is exceedingly fog-bound during the summer, hence the settlements are on the west side. Principal settlement is Shana at the center of the west coast; further south is Rubetsu. Both places are on bays and have fishing piers. Beaches are available, but the bays are poor for anchorage purposes and are exposed to offshore winds and seas. On the east side Toshimoe near the south end is the sole port and not a very good one. There are beaches generally opposite the low ground on both sides of the island. In between the coast is precipitous.

There is ample space on Etorofu for airdromes, depots, and assembly points. There is plenty of water, there being numerous lakes and streams. Forests afford considerable cover from air observation. Disadvantage is that main debarkation points are on the west side, requiring ships to pass around the island to reach their destinations. The straits separating Etorofu from adjacent islands are Kunashiri Channel on the south and Etorofu Strait on the north, respectively 12 and 24 miles wide. There is no navigational difficulty in these straits, other than ice in winter and fogs in summer.

The Central Kuriles

This is a group of 16 main islands. The southernmost one is *Uruppu,* 63 miles by wide. It is formed by four groups of volcanoes, separated from one another by w ground extending across the island. Volcanoes are uniformly slightly under



4,000 feet in altitude; all are on the active list.

Uruppu is noted for its salmon runs during the autumn. Salmon are caught up-stream in nets, as many as 2,000 being taken in a single haul. Whales and killer whales follow the salmon and destroy great numbers before they reach the shelter of shallow water.

Although the area of Uruppu exceeds 60 square miles, the permanent population is limited to caretakers for fishing posts. At last census it numbered under 50 persons.

The low ground has many lakes, streams, and marshes. There is ample space for air fields. This is the most northerly Kurile island on which bamboo grows. There are numerous bays with beaches on the west side, and several on the east side. The west side is the more suitable for invasion landings, outside of winter months when the coast is liable to be ice bound. Bays with beaches are more numerous than on the east coast, which is covered frequently by fog during the summer and is exposed to rough seas when winds are off shore.

Extensive flat ground occurs at the ends of the island.

North of Uruppu are the uninhabited *Chirihoi* (or Black) islands and *Burotan* (or Makanruru). These are round islands, inactive volcanoes. There are small coves where landings could be made. For military needs these islands would be of value mainly for observation or signal purposes.

Shimushiru is 31 miles long and 5 miles wide, with a population of less than 100. There are three volcanic groups. The end ones are high and active with elevations of 4,460 feet in the south and 5,004 feet in the north. The central area is flat upland with low mountains. Timber in the mountains is of the scrub variety, but is often dense and difficult to penetrate. This section affords sites for airfields.

At the north tip is Broughton Bay—circular and deep, being the crater of an old volcano, now inactive. Walls of the crater rise steeply except for one good beach on the west side. The entrance to the bay is narrow, and according to latest reports had only 6 feet of water. It would seem to be easy to dredge a deep channel into this bay. In this case, assuming air superiority, the bay could become a very good sea base.

There are several other bays on the island, none being sheltered in all weathers.

North of Shimushiru is *Ketoi,* a round island 5 miles in diameter and containing several volcanoes, at least one of which is usually active. This island does not seem to have any military value other than for observation purposes.

Next to the north are the two *Ushishiru* Islands, each 1½ miles in diameter. The southern one is a volcano with one broken-down wall admitting the sea to the crater. The entrance is only 60 feet wide, but once inside there are beaches and anchorage. The north island is a flat plateau about 300 feet above sea level; it might be used as an emergency landing field. Like Ketoi, the islands are uninhabited and probably undefended.

Rushuwa (or Rashau or Rashowa), next island to the north, is a long island 8½ by 3½ miles. Volcanoes which are active are at the two ends with a flat plateau in between. There are no beaches, no inhabitants, no known resources.

Above Rushuwa is *Matsuwa* (or Matau), also uninhabited and believed undefended. It is 6½ miles long by 3½ wide. Volcanoes, some exceedingly violent, practically cover the island. There is a beach at the south end, but elsewhere the coast is precipitous.

Next island is *Raikoke* (or Kaikoke), a round island mile in diameter and consisting only of an active volcano, with neither beaches, inhabitants, nor resources.

Shasukotan is a long island 13 miles by 5. The two ends are active volcanoes, each with elevations of about 3,000 feet. Between them is an isthmus only ½ mile wide but fairly level at an elevation of 460 feet above the sea. There are no beaches, no trees except scrub and this only at the north end, no inhabitants, and no known defenses. Off the north end and to the west are the uninhabited islands of *Ekaruma* and *Chirikotan,* round islands respectively about 3 and 4 miles in diameter. Both are active volcanoes.

Harumukotan (or Kharimkotan), 6½ miles long by 4 wide, is another uninhabited island. The coasts are everywhere cliff-bound, but with narrow beaches at their base, except at the north end, where there are sand dunes. The local volcano, inactive, is near the center of the island, and has an elevation of 4,050 feet.

Onnekotan, 25 miles long, is spoon-shaped with the handle pointing northeast. The latter is uniformly 4½ miles wide; the bowl has a diameter of 9 miles. At the ends of the island are active volcanoes, with rough ground in between. The west coast is almost straight and cliff-bound; the east one is precipitous except for Blackiston Bay, which has a good beach. Near Bay at the north tip is an open harbor with small beaches. The island is uninhabited.

Off the north end of Onnekotan and 13 miles to the west is *Makanru,* an inactive mass of several volcanoes 6½ by 4 miles in size. Beaches are found at both ends of this island, but they are boulder-strewn. There are no resources and no inhabitants.

The North Kuriles

The southernmost, largest, and most important of the three main islands is *Paramushiru.* It is 60 miles long with an average width of 10 miles. Outside of military establishments the permanent population is limited to caretakers and a few administrative officials.

Paramushiru consists of four groups of volcanoes, the most prominent of which is Mosotu Fuji (or Shiriyajiri), which rises from a peninsula at the south end in a magnificent detached cone 6,900 feet high. Ten miles to the north is Mt. Chikuramine (6,400 feet). Between these two volcanoes are several others exceeding 6,000 feet. At the north end is another mass of volcanoes with elevations up to 4,700 feet. Lying between these two main ranges are two other volcanic groups, making four in all. They are separated one from another only by narrow valleys which cut across the island from shore to shore. The island is the most completely mountain-covered in the Kuriles. Volcanoes are active; they smoke, and glow at night, but there have been no marked eruptions for 80 years.

There are beaches on both east and west coasts, but more on the east side, which also has more rocks on and offshore beaches.

There is an improved commercial harbor at Kakumabetsu in the center of the west coast. Fuel depots, piers, warehouses, water, and usual base facilities are available. Kujira Bay further south on the same side of the island is a less well developed base, but could be expanded. On both coasts are

number of smaller bays, of which Suribachi near the south end of the east side has a pier. Two small ports are located at the north tip on Paramushiru Strait, which separates the island of that name from Shimushu.

Suribachi, the largest canning and fish station in the Kuriles, has a large transient population during normal seasons. There is flat land suitable for airfields in the vicinity. Part of the low area is marshy and contains lakes.

Flat land and airfields are in rear of Murakami Bay, which is one of the two ports on Paramushiru Strait. Sand dunes are found at both ends of the island.

Paramushiru is an enemy air and naval base. It is 3,000 nautical miles from Seattle, less than 1,400 from Dutch Harbor, and 655 from Attu. It lies 625 miles from the south Kurile Island of Kunashiri—just about halfway between that island and Attu, which is not quite halfway from Paramushiru to Dutch Harbor.

Although Paramushiru is mountainous, and snow is found in the mountains at all seasons, the island is large enough for first class base for ground, air, and sea forces.

To the north of Paramushiru and separated by the strait of that name is *Shimushu*. The strait is 5 miles long and one mile at the narrowest point. It is navigable. Shimushu is 14 miles long, with an average width of 7 miles and a maximum of 12. It differs from all other Kurile Islands in that it is not mountainous. The highest elevation is at the south end—623 feet. The terrain is rolling. The island is 7 miles south of the tip of Kamchatka (separated by the Kurile Strait, which is dangerous to navigation by reason of numerous reefs and rocks).

Shimushu is an enemy base operated in conjunction with adjacent Paramushiru. The coasts are generally high, averaging 120-foot bluffs on the west side and double that on the east side. On the north coast is a port—Kataoka—equipped with fuel supplies. The permanent population is last reported as about 2,500.

The island is mostly treeless, with considerable grass. Several small streams lead to the coast, and at these points are minor beaches, with sloping hills bordering them. There are a number of lakes scattered irregularly. The island has airfields.

The third of the North Kuriles is *Araido* (or Araito), which is 26 miles northwest of the north part of Paramushiru. This round island 8 miles in diameter consists of one large volcano which is 7,650 feet high, the highest in the Kuriles. It is permanently snow-covered. This volcano has not been directly active during the past 50 years, but in 1934, presumably from the same volcanic source, a new volcano arose out of the sea about 500 yards out from the east coast. It was last reported as over 300 feet high.

Araido has beaches of an inferior quality on the north and southeast coasts. There are believed to be a few inhabitants on this island, but in general it has no resources.

COMMENTS

The Central Kuriles are of slight military importance.

Both the north and south Kuriles are of major importance, and both are enemy bases. They are capable of being expanded.

The south Kuriles, being wooded, afford timber for construction purposes and shelter from air observation. The north Kuriles have little shelter from air observation, which would be a minor defect for a Power having air superiority. It would, however, require substantial forces to maintain overhead cover.

The distances between the north-and-south Kuriles and the east-and-west Aleutian Islands are almost ideal for spacing air bases—600 to 700 miles apart. All can be made into sea bases.

The climate throughout the Kuriles is rude but not unhealthy. Fog in summer and ice in winter are obstacles to operations. Best season for attacking the islands is autumn.

CONTROL OF DIRECTION at Extreme High Angles of Elevation

A Practical Expedient for the 105-mm Howitzer M2A2 and 55-mm Howitzer M1A1

In order to obtain elevations beyond that provided on the carriage and on the telescope mount, it is necessary to emplace the piece on a slope or to dig in the trails and construct a recoil pit of the required size. It is important that the trail pits be dug so that the trunnions will be approximately level.

When the piece is so emplaced, the telescope mount is tilted to the rear when the elevation of the barrel exceeds approximately 1180 mils; the azimuth compensating mechanism can not compensate in direction as the piece is traversed about the cradle, which is also tilted to the rear. The expedient described below permits laying with reasonable accuracy on targets within about 100 mils each side of the center of traverse. Without the use of this expedient errors in direction must be expected. Therefore, the piece must be emplaced in the center of traverse and pointing within 100 mils of the target to be engaged.

First lay the piece for direction on the target with the barrel at an elevation which will permit longitudinal leveling of the telescope mount. Set the azimuth scales of the telescope to zero and aline the aiming posts to the front or rear, depending upon the slope of the terrain at the piece position. If the aiming posts are not visible within the limits of travel of the tilting head, set the azimuth scales of the panoramic telescope at zero, sighting to the rear, and depress the tilting head until the ground immediately in rear of the piece is visible, taking care not to force the delicate gearing of the tilting head mechanism beyond its extent of travel. Place an aiming post or other straight edge horizontally on the ground immediately in rear of the trails and aline it parallel with the *vertical* hair in the panoramic telescope reticle. The aiming post or straight edge on the ground is used as the aiming post for direction when the piece is elevated to the required higher angles.

Due to displacement as the piece is traversed, the vertical hair in the reticle may not then aline exactly on the aiming post or straight edge, but must be alined parallel. Parallelism can be more easily determined if the tilting head is elevated or depressed until equal displacement is indicated on the reticle's *horizontal* hair at several points along the straight edge. It is imperative that the telescope mount be cross-leveled when the vertical hair is alined on or parallel to the straight edge.

TANK DESTROYERS AT WORK—
Without The Book

By Lt. Col. R. L. McNelly, FA

Due to the retirement of the bulk of the Japanese Armored Forces on Luzon to zones other than that in which the 637th Tank Destroyer Battalion was operating, only one tank encounter worthy of the name occurred during the race for Manila. This took place at Ft. Stotsenberg, where six Jap medium tanks were destroyed, the remainder withdrawing into the foothills. During this encounter the battalion suffered a small number of casualties killed and wounded and lost two destroyers, one salvageable.

From here on in began a series of episodes such as turn the Field Manual writer's hair gray and cause red faces among die-hard orthodox campaigners. Finding no more tanks to conquer, the battalion's fire power was utilized in close support of infantry assaults on pill-boxes, caves, and gun emplacements by direct fire methods. At ranges of 400 to 1,400 yards enemy installations were plastered point-blank. Both APC and HE ammunition were used as well as the destroyers' .50-cal. AA guns firing directly from their turret ring mounts. This fire was found effective just prior to the infantry assault and supplemented the organic automatic weapons of the infantry.

The field day really got into high gear in Manila. No armor making its appearance, the TDs were called upon for direct fire on buildings during the street fighting and had their particular section of the Walled City to pulverize when it came time to go in after the besieged Jap garrison there. Many mines of tremendous power were encountered during the street fighting phase but fortune smiled on the destroyers: only two instances of damage to vehicles by mine action occurred, and personnel casualties from this cause were not serious. Ample reconnaissance and excellent engineer cooperation reduced this nuisance to a minimum. The toughest thing the destroyer crews had to face in this type of action was fragmentation from our own 76-mm shells as well as the 155-mm artillery bursts. Firing points in many cases were so close to masonry and reinforced concrete walls that the back-lash of flying fragments was practically impossible to avoid. There were several casualties from this source, but none were serious.

The Japs had a habit of constructing concrete emplacements right in the building corridors and in vantage points at basement level. In one instance Nip machine guns were emplaced under a church altar. Such strongholds were meat for destroyer crews. APC and HE served up in generous amounts with a dash of condiment in the form of .50-cal. spray direc at windows and through doorways proved very efficacious the "treatment" for fanatical Jap suicide groups.

Further examples of close infantry support were afford during these hectic days of yard-by-yard tough going. Ta destroyers supported infantry advance elements moving alo the rubble-covered river bank with direct fire from the destr ers' side of the river. Liaison and target designation w accomplished by radio across the water between infantry a supporting TDs, the infantry furnishing an SCR-300 w operator to accompany the destroyers.

These officious and tireless tank-busters were only gett started, however. When an amphibious operation was plann for an infantry unit as a flank attack on Jap positions so of the Pasig River the TDs were called upon to blast out t concrete retaining wall in various places along the oppo water's edge so that the doughboys would have steps and op ings through which to scramble from the assault boats. T "busters" went cheerily to work, and by the time for the sault gaps and crude steps had been chipped from the he wall, nearly to water level. It wasn't necessary for an inf tryman to wet so much as a foot in getting ashore (if watched his step). To make the day complete the tank stroyer turret crews then dismounted their .50-cal. AA g from the vehicle, set them up on ground mounts in windo and building rubble, and assisted in covering the assault w automatic weapons fire.

From across the river came a report that Japs were occu ing a prominent tower on a modern steel building and look right down the throats of advancing ground units. This w a "natural" for direct fire, but it assumed a tough aspect u inspection. The heavy ponton bridge was still under constr tion and no access to south Manila was as yet available armored weight. Positions from which to gain direct fire the bothersome OP were practically nonexistent on the no bank of the Pasig River due to the masking effect of trem dous piles of debris and collapsed structures extending to water's edge. Indirect artillery fire, while effective on building itself, was a rather expensive method for sprinkli vertical tower.

Reconnaissance further back disclosed a direct shot at tower down a railroad right of way, in a position for only destroyer at a time. And that tower was 'way, 'way d there. The TDs went to work. With an observer astride ridge of the freight station roof and using the gunner's q rant (the range finally jumped the sight diagram on the g ner's telescope), target hits were obtained at an elevatio 52.5—direct fire at 4,500 to 4,600 yards, according to firing tables. Hardly "in the book," but it worked. Be sporadic return fire was received eleven rounds had b pumped into the tower, columns of black smoke curling u

AUTHOR'S NOTE

One of the oldest of the TD units, the 637th TD Bn trained for two years in the Fiji Islands. It received new equipment in the Hebrides before departing for Bougainville. Since landing on Luzon as part of the assault amphibious corps it has made a brilliant record: the Commanding Generals of both the 37th (its own) and the 11th Airborne Divisions have commended its work.

each HE burst. Just to make it tough for the Nips the crew went back an hour later and repeated the process.

During this "Buck Rogers" act an amusing dialogue was monitored on the platoon radio. Close frequency made audible a conversation between a cub plane and an artillery battery apparently firing into the same area. The cub observer was taking the battery to task for not advising when it had fired. Informed that the battery had not fired and that the cub was in so many words "all wet," the mystified observer croaked back, "Well, somebody hit the target—who in h— was it?"

While all this was going on in scattered positions throughout the city the Reconnaissance Company of the battalion was engaged in its own little private war at the mouth of the Pasig River. In addition to other duties, the battalion commander had been placed in command of a provisional force which was charged with security and clean-up of the Division zone north of the river after the bulk of the infantry had crossed south in pursuit of the Japs. This provisional force consisted of elements of the tank destroyer battalion reinforced by the Division Reconnaissance Troop and some tanks.

No missions presenting themselves elsewhere for the TD Reconnaissance Company, it was assigned to secure the area including the mouth of the Pasig and extending north approximately two miles along Manila Bay. The three 81-mm mortars of the TD firing company maintenance sections were collected, some HE (heavy) mortar ammunition obtained, and the whole "shibang" turned over to Reconnaissance Company. With their automatic weapons, bazookas, and the improvised little triplet mortar section those Recon Co men made life miserable for the Japs directly across the river. Would-be suicide swimmers bent on night demolitions and other deviltry in our areas were quickly dispatched; many barges attempting to evacuate besieged Nips from the Walled City and Ft. Santiago were sunk or burned. OPs maintained by the Recon force spotted many lucrative targets for artillery fire in enemy-held positions. They took on all comers, including Nips escaping onto the sea wall which ran at an angle into the Bay. Mortars were used to plaster this wall and in one instance a Jap machine gun nest on a not far distant jetty was knocked out by bazooka fire, the bazooka man firing indirect fire adjusted by a forward observer located in a neutralized enemy gun position. Rather a novel bazooka problem, to say nothing of the fact that "the book" says the firing company maintenance sections retain their mortar for firing recovery screens with the only ammunition officially authorized for issue to the sections —smoke. All of which suggests that when the shootin' starts you throw everything but the kitchen sink (the Japs even threw some of these out the windows of the Manila Hotel) and then look up the book later.

It was at this stage that some more interesting tasks faced the destroyers. One section of M-18s mounting the 76-mm battalion weapon was maintained near the river mouth in cover positions at all times. As lucrative targets appeared the OPs would notify this local "fire department" and out would dash the destroyers to take up firing positions along the waterfront. Much good hunting was experienced in the form of tugs, barges, and miscellaneous craft fleeing from the now trapped enemy positions. Small boats were strafed, tugs set afire, and gasoline and ammunition barges blown sky high. One evening the Japs set forth about dusk in what appeared to be a makeshift armored boat of some sort. Covered on sides and pilot house with boiler plate or salvaged ship siding, it waddled with difficulty into the Bay at about 8 knots an hour. Keeping well behind the sea wall until far from shore, the wily pilot was about to make good his escape when the destroyer on duty let him have it with APC as he emerged from the far end of the sea wall. At 3,000 yards after a difficult adjustment two direct hits were registered and the tug burst into flame. That destroyer crew added another Nip flag on their hull, and they deserved it. Much enemy personnel, materiel, and supplies were thus prevented from being evacuated to Bataan and points north.

On Leyte an M-10 tank destroyer advances ahead of infantry to blast Jap pillboxes at Ormoc.

During all this duck-pond phase many miserable Filipinos escaping the tortures of internment at Ft. Santiago were fished from the river by Reconnaissance Company men manning the river posts. Many of the rescued gave much valuable information as to Jap activities south of the river. One picked up along the bank was asked during his examination as to the status of enemy water transport, how many barges still remained with the enemy. He replied that as far as he knew few if any barges were left. "Tank destroyers blow all up," he added with an explosive gesture of the hands.

While carrying on their primary mission of heavy employment all tank destroyer companies also maintained constant patrols throughout the city, spotting guerrilla disorders, answering calls to erase Jap snipers and straggling suicidal saboteurs, and in general maintaining order in the chaos of a war-torn city. This was accomplished with "jeeps" and M-20 patrols.

Much enemy equipment was also destroyed from vantage points in this area by the 37-mm guns of Reconnaissance Company's light tanks. Obtained in lieu of the car, armored, M-8, the light tank proved of great value and a favorite with the

men. On one mission en route to Manila a tank destroyer Reconnaissance Company platoon patrolling with two light tanks, an M-20, and five "jeeps" mounting a .30-cal. machine gun each, ran into an enemy supply installation along the Nip route of withdrawal. In a sharp 25-minute engagement 51 Japs were dispatched to their honorable ancestors (actual count; many more fell in rice fields and in cover positions), two 47-mm AT guns knocked out, a Jap cargo truck destroyed, three buildings blown up and set afire (apparently they contained gasoline and explosives), and general chaos and confusion spread among the enemy. The platoon withdrew and returned to base with only one man wounded, not seriously. During this encounter the ¼-tons fired their .30-calibers point blank from the highway and hand-to-hand combat was engaged in at a few points.

This account would not be complete without a reference to what is probably an apt example of the adage "from the sublime to the ridiculous." The sublime accomplishment for one tank destroyer crew occurred during the battle for Ft. William McKinley. A destroyer came face to face with a well dug-in Jap naval gun. Both foes saw each other almost simultaneously, for the Nip 5-incher let loose with a point blank blast which might well have cleaved the destroyer in two. The alert driver, however, swerved to the flank without reducing speed and took cover in a convenient revetment previously deserted by the enemy. Stealthy observation dictated the proper time to pull into a hull down position from which the destroyer later put several rounds of APC into the breach of the naval gun and finished off the enemy crew with .50-caliber fire from its machine gun.

An almost unbelievable corollary to this episode turns us to a ridiculous but stirring example of alertness and superb gunnery. A destroyer of the same company emerged from cover to observe a Nip officer making tracks over a field about 800 yards away, en route to a "better 'ole." The Jap's speed was matched only by that of the gunner in the turret of the destroyer. Ripley or no Ripley, believe it or not, that gunner traversed and tracked that Jap on the dead run. The first round of 76-mm HE caught the Jap squarely. All that could be found of him later were pieces of his honorable sword and his revolver. The latter reposes with the platoon as a reminder that it can happen here (if only once in a lifetime). Needless to say the destroyer sergeant could not appreciate this practical joke by the gunner. The sergeant had been robbed of his target just as he was about to open up with the .50 from his ring mount position.

For long range fire across the Roer River the tank destroyers of the 2nd Armored Division, Ninth Army, had to dig ramps to gain extra elevation.

PROPER USE and ABUSE of TANK DESTROYERS

By Lt. Eugene T. Oborn, FA

Much has been written and remains to be written on the employment of high muzzle velocity tank destroyers to obtain the maximum amount of effectiveness from each individual weapon. In the final analysis, the relative proficiency of a tank destroyer unit and its weapons is measured by the amount and kind of enemy equipment destroyed as opposed to its own losses in combat through enemy action.

In the accompanying table appears a comparison within a Tank Destroyer Battalion (899th) of the accomplishments and losses of the component gun and reconnaissance companies. For the most part the gun companies have worked with the same respective infantry regiments of the same infantry division (9th) since D-day, June 6, 1944. The table covers a period of approximately seven months of combat. In it "M-10s destroyed" means that none of these weapons were repaired on the spot, or within a reasonable time.

"A" Co was attached to a regiment which permitted use of the guns under company control. Recommendations of its

ENEMY EQUIPMENT DESTROYED (OVER 7 MONTHS' PERIOD)

Co.	Tanks					SP Guns		Guns				AT Gren Empl	Rock Laun 88-mm	Str Pt	Pill Box	MG Nest	OP	GP Vehs	PW	M-8s	M-10s Destroyed
	Renault	Mk. III	Mk. IV	Mk. V	Mk. VI	75-mm	105-mm	AT	Field	88-mm	20-mm										
A		1	7	14		5	3	10	1	3	13	2		1	32	49	3	4	465		2
B	5	2	5	5		3		13		1			1		12	8	1	7	59		13
C			1	8	1			8	2		1	1		4	13	21		4	1,173		9
RCN													1			5		3	158	0	

commander have, in the main, been followed. This employment favors the present type of battalion tank destroyer organization; missions were assigned generally and the company officers and NCOs were permitted to use their own initiative in accomplishing these missions.

In the case of "C" and (particularly) "B" companies, also attached to regiments, recommendations of the respective company commanders were frequently not followed. The result was the use of their destroyers on missions which should and could have been accomplished by tanks, artillery, heavy weapons, or the riflemen themselves, all of which were available.

Tank destroyers are extremely vulnerable to antitank fire. If these weapons continue to be used to precede leading infantry elements in attacking enemy resistance, and to gain ground which is to be seized and held by the infantry which follows them, the concept that tank destroyer units in combat are most effectively organized into groups and battalions is wrong. The infantry regimental commander would be inclined to use tank destroyers properly if a company of tank destroyers were made an organic part of each regiment, in place of their being attached from army troops. He would then assume responsibility for his own protection against tanks—a condition which would promote serious thought before he dissipated his destroyers on secondary missions.

It is perfectly feasible that a company of tank destroyers could replace the antitank company, which at present is an organic part of each infantry regiment. Such an organization of antitank weapons would also place the responsibility for obtaining vehicular and personnel replacement on the individuals who have ordered tank destroyers on missions which caused losses which were unwarranted, in terms of the losses they were able to inflict on the enemy. Obviously, as replacement destroyers and trained crews became more difficult to obtain, the regimental commander would be forced to change his methods to more proper employment of these high velocity weapons.

The alternative to such an unnecessary reorganization of TDs is to assign missions and allow TD men to carry them out. Vigorous foot reconnaissance before moving destroyers into primary, alternate, or cover positions, as well as reconnaissance for through routes of ingress and egress, are maxims of TD employment which cannot profitably be violated. When, however, as sometimes happens, friendly tanks are not available to make the attack with the infantry, the tank destroyer platoon leader contacts and remains with the infantry commander throughout the advance, receiving his missions from him but carrying them out in his own way. When a suitable enemy target is located the lead destroyer of the platoon is informed of the situation by means of the infantry "Walky-Talky" radio, which the platoon leader and the leading destroyer of each platoon carry, and the tank destroyer platoon leader is allowed to make his own decision, using his own ingenuity and initiative as to how the job can best be accomplished. He, his gun commanders, and his reconnaissance corporal must be allowed to reconnoiter. The TD company commander must be informed of the proposed plan of his platoon leader, and approve or disapprove it, before the guns are moved.

If tanks are available for an advancing task force, then tank destroyers should follow, not precede, the tanks. The tank destroyer weapons and personnel must be employed only in preparing to destroy enemy armor.

But in all cases, firing positions should be selected in such a manner as to provide flanking fire on enemy armor, and the positions must be in depth and mutually supporting. Too many times TD guns are ordered into positions (by infantry officers) from which enemy tanks can be stopped only by penetrating their thick frontal armor—a frequent impossibility. The proper solution is to have well reconnoitered and carefully selected ready and firing positions covered by a security outpost, in contact by wire communication through which to sound the alarm in case of hostile armored activity. Range cards should be prepared for each probable firing position in order to obtain hits with the least amount of adjustment after opening fire. Ammunition, and the range table for firing Shell, Illuminating, up to ranges of 4,000 yards, should be placed in each destroyer. This will permit one destroyer of a platoon to illuminate an area, while the other three bring direct fire on enemy armor, if the enemy attacks with armor at night.

A solution to another vital problem is to have reconnaissance company personnel, both officers and men, trained in actual gunnery work so that in battle, when the cards are down and trained replacements are needed immediately, they can be drawn without delay from the reconnaissance company. Green reinforcements may be trained for reconnaissance and gunnery in the reconnaissance company.

Experience of the TD battalion upon whose experience most of this article is based, has shown that when appropriate field manuals are followed and the supported unit allows TD personnel to exercise their initiative, the desired results will be obtained with far fewer losses. It is when the basic principles are violated that analysis, discussion, and reeducation—or, as a last result, reorganization—are in order.

Only when the maximum possible amount of enemy armor and equipment are disabled or destroyed, as against each friendly tank destroyer put out of action, have we achieved the optimum, successful tank destroyer operation.

Post-war Reserve Officer Policies

It was recently announced by the War Department that officers relieved from active duty would be offered commissions in the Organized Reserve Corps at the highest temporary rank they had attained during the war, subject to temporary adjustment while on extended active duty with the Regular Army or National Guard. Since then, general policies for the Organized Reserve Corps have been approved for the post-war period. As a matter of interest to all officers, we present herewith the approved post-war policy as it affects mission, organization, personnel, and training.

MISSION OF THE ORGANIZED RESERVE CORPS

Active Reserve

To be capable of furnishing in the event of emergency

a. Units effectively organized and trained in time of peace for rapid mobilization, expansion, and development. Such units to be of types and numbers which will, together with the permanent establishment and the National Guard, constitute balanced forces for the Army of the United States.

b. Additional trained commissioned and enlisted personnel for necessary replacements and expansion of the Army of the United States.

Inactive Reserve

To provide a reservoir of individuals with military experience available for assignment as needed to positions for which their past experience and present capabilities qualify them.

ORGANIZATION

Active Reserve

Strength and Composition

The Active Reserve will be composed of those individuals and units sufficient in types and numbers which will, together with the other components, constitute an over-all balanced force in the Army of the United States.

Organization

The basis of organization of Reserve units will be the war strength tables of organization of the Regular Army.

Units of such sizes and types will be authorized as are required to obtain an over-all balanced force, except that no organization larger than a division will be authorized. However, the table of organization units pertaining to higher headquarters may be organized.

Units in the Active Reserve will be organized as follows:

a. Units which will have assigned thereto complete T/O strength of both officers and men.

b. Units to which officers are assigned, either in full or in part of T/O strength, and to which enlisted cadres are assigned.

c. Units to which only officers are assigned, either in full or in part of T/O strength.

The personnel in the Active Reserve not assigned to Organized Reserve units shall constitute the reservoir of strength needed for the expansion of the Army of the United States and as replacements for all components. Officers included in this reservoir should be placed, insofar as practicable, in composite units or attached or assigned to Regular Army units or to overhead establishments for purposes of administration and training. Enlisted men included in the reservoir will be accounted for insofar as practicable.

Distribution

Allocation of units will be based on such factors as:

a. Density of male population of military age, coupled with proper geographic distribution to and within military areas.

b. Utility of the unit upon being mobilized.

c. Availability of similar types of units of the permanent establishment and National Guard in connection with active peacetime training facilities.

d. Availability of personnel for units requiring technically trained personnel.

Inactive Reserve

The Inactive Reserve will be composed of officers only.

Its strength will be unlimited.

The Inactive Reserve will be unorganized except for the retention of existing records which pertain to each individual.

POLICIES REGARDING PROCUREMENT, MAINTENANCE OF EFFICIENCY, PROMOTION, AND SEPARATION

General

The term "officer" as used in this paper applies equally to commissioned officers and warrant officers.

Standards to implement the policies contained herein will be established by the War Department.

In general, basic policies regarding procurement, maintenance of efficiency, promotion, and separation of officers should be the same for both the National Guard and the Organized Reserve Corps.

Officers in the post-war Organized Reserve Corps will be classified as belonging to either the Active or Inactive Reserve. Officers of the Active Reserve will *a.* meet minimum requirements of training, efficiency, and physical qualifications; *b.* be under statutory retirement age; *c.* be of appropriate age in grade according to their potential assignments. Exceptions to this policy in the case of officers with wartime service will be given due consideration. Officers of the Inactive Reserve will be those who fail to meet standards for the Active Reserve.

Procurement

Commissioned officers will be obtained from the following sources:

a. Individuals with honorable and creditable service as commissioned officers in any of the armed services of the United States.

b. Graduates of accredited senior Reserve Officer Training Corps units.

c. Graduates of officer candidate schools, graduate aviation cadets, and/or flight officers.

d. Officers of the National Guard of the United States.

e. Specialists (such as ministers of the Gospel, doctors, and technical experts) who may be essential, regardless of previous military training.

Warrant officers will be obtained from the following sources:

a. Individuals with honorable and creditable service as officers in the armed services of the United States.

b. Qualified noncommissioned officers with appropriate length of service.

c. Graduate aviation cadets.

Maintenance of Efficiency

Professional efficeincy of officers will be maintained by active duty, attendance at Army schools, inactive duty training, army extension courses.

Commissioned officers in the Active Reserve will be afforded the opportunity to qualify for promotion to the next higher grade. Officers (to include the grade of lieutenant colonel) who fail to qualify for promotion during the established period of service in grade will be transferred to the Inactive Reserve.

Every opportunity will be offered to those in the Inactive Reserve to requalify for transfer to the Active Reserve.

Promotion

Promotion of commissioned officers in the Active Reserve will be based on length of service in grade, efficiency, and demonstrated ability to perform duties of the higher grade.

Fitness for promotion of officers will be determined by a board of Regular Army and Reserve officers.

Officers of the Inactive Reserve will be ineligible for promotion.

Promotion of warrant officers will be based on efficiency and appropriate length of service in grade.

Separation

Resignations may be accepted for reasonable cause.

Entering an incompatible occupation or holding an incompatible office, conviction by a civil court of a felony involving moral turpitude, or entry into service of a foreign country may be considered grounds for immediate discharge of an officer. In voluntary separation from the service of commissioned officers for other causes will be by means of reclassification proceedings. Involuntary separation of warrant officers will conform to procedure prescribed for the Regular Army.

TRAINING POLICIES FOR THE POST-WAR ORGANIZED RESERVE CORPS

Active Reserve

Objectives

The objective of training of the Active Reserve will be to attain individual and unit proficiency based, as far as practicable, on the standards applicable to the permanent establishment.

Individual training objectives will be to

a. Develop and qualify individuals for their contemplated duties in the event of an emergency, active duty with the permanent establishment, and duty in connection with any Universal Military Training program authorized by Congress.

b. Discover, develop, and qualify officers with special abilities to assume technical, staff, or command responsibilities up to and including the highest levels.

Unit training objectives will be to

a. Develop those units to which only officers are assigned, either in full or in part of T/O strength, so that they will be capable of mobilization according to their priorities.

b. Develop those units to which officers are assigned, either in full or in part of T/O strength, and to which enlisted cadres are assigned and which have essential training equipment, so that they will be capable of prompt mobilization, expansion, and early development for field service.

c. Insure that those units which will have assigned thereto complete T/O strength of both officers and men and which are armed, equipped, and uniformed, will be capable of immediate mobilization and field service.

Methods of Accomplishment

All training will conform to established War Department doctrine.

Training will be conducted under the supervision of the commanding general of the appropriate major command under directives published by the War Department, except that the training of individuals and units required for War Department overhead will be the responsibility of the appropriate War Department agency. Such responsibility of the major command will include publication of directives, supervision of instructors, inspection authority, conduct of tests, conduct of extension courses, reports to the War Department on the state of training and recommendations for remedial action.

Command responsibility for training and efficiency will be maintained.

The following policies will govern the conduct of the training for the Active Reserve whenever practicable:

a. Active and Inactive duty training will be by and within units.

b. Active duty training will be made available so that the instruction received in schools, or through extension courses and other inactive duty training, will be furthered by applicatory active duty.

c. Training will be conducted with modern types of accepted arms and equipment.

Inactive Reserve

Training of the Inactive Reserve is not contemplated; officers in the Inactive Reserve will, however, be given the opportunity to receive such training as will qualify them for return to the Active Reserve.

COORDINATION OF AIR OPs

Col. Shepard is discussing a more "normal" weather situation than appears in this scene of fog and wet snow. This photo was made near La Bourgance on 12 Nov 44, when the season's first snow hit the Seventh Army.

By Lt. Col. Frederick C. Shepard, FA

The experience of the 30th Infantry Division Artillery in the campaigns from the Normandy beachhead through the Siegfried Line dictates that the Air OPs should be operated as one unit under direct division artillery control. This conclusion is based upon operations that include 2,037 combat missions, totaling 3,507 hours, flown during the period 11 Jun 44 to 11 Nov 44, and an estimated 500 hours in administrative duties and weather checks of less than one hour's duration. Between these dates, two Air OPs normally covered the division front during all flying hours, except that during hours of poor visibility and slight activity only one plane was up, and on two occasions as many as five planes were in the air—once during the battle at Mortain and once during the breakthrough of the Siegfried Line. Only once during the entire period has it been expedient to detach a battalion air section for separate operation, that being the air section of the direct support battalion accompanying the task force that led the rapid march of 125 miles from Pontoise, France, to Tournai, Belgium. Throughout the operations any plane in the air could adjust any battalion with the division artillery, and using wire communications with the radio it could adjust any battalion in the division sector.

Based upon the premises that to perform their proper function the Air OPs must (1) provide continuous air coverage of the division front during all flying hours, (2) each be able to adjust any artillery unit with the division, and (3) furnish rapid and pertinent observation by properly instructed pilots, the following organization was devised. The battalion air sections, together with the division artillery air section, are combined into one unit under the command of the division artillery air officer. They operate from one field, travel as one march unit, have one combined mess, provide their own interior guard, and are controlled as a single unit. Operational control is exercised by the division artillery commander, through the S-2 section. Battalion commanders retain no tactical control over their respective air sections, except that any calls by the unit commanders for air missions (such as registrations) are granted, but must be cleared through the S-2 of the division artillery.

This organization has distinct advantages that cannot be secured when the air sections are operated independently. The principal ones are: (1) better control and coordination of use of Air OPs; (2) greater flexibility in meeting unusual situations; (3) greater simplicity in operational activities; (4) closer supervision of maintenance and performance of planes; and (5) closer cooperation between Air OPs and the various battalions.

These advantages can best be shown by a description of the operations section of the Air OPs. This section is run by an officer, usually the assistant division artillery air officer (in addition to flying duties), with an enlisted assistant. They are on duty with the operations section during all flying hours. The operations officer keeps the situation map posted up to date. From it he briefs each pilot just prior to the take-off as to where he may fly with safety, what his general mission is, including area to be observed, and any special missions for that particular flight. Normally he furnishes the observer with a photo-map of the area mounted on cardboard. The missions, usually from the division artillery S-2, are entered on the "Air Mission Report" and handed to the observer. When the flight is completed the observer completes this "Air Mission Report" by entering his observations and fire missions on the report and turning it in to the operations officer at the same time that he makes his oral report. A simple "Air OP Log" is also kept, in which are entered the date, time of take-off, time of landing, name of pilot, name of observer, and observer's report. This log is a permanent record. At the close of each day's operations the "Air Mission Reports" are turned in to the division artillery S-2 by the operations officer, at which time he is given instructions for the next day's operations, including details of the infantry and artillery plan, the latest disposition of friendly units, and special air missions for the following day. Thus with one situation map and with one officer on duty each pilot and observer is briefed accurately and fully just prior to each flight. This could not be done with four separate air sections.

Flights are scheduled on an hourly basis from a roster of pilots and observers. Two observers, either commissioned or non-commissioned officers, are detailed for duty from each battalion and stay with the Air OP section at all times. It has been found that non-commissioned officers not only make satisfactory observers, but some of them do exceptionally good work. Usually pilots and observers are paired off so that they work together as a team. Flights are scheduled so that the

planes taking off are in the air before the others land. This guarantees a continuous air coverage. Special flights in addition to those scheduled may be flown on call of any unit, provided the planes in the air are busy or the mission is of such a nature that it calls for special briefing and immediate execution. Thus there is a continuous air coverage of the sector with little administrative red-tape, and without overworking the crews of any particular battalion.

Greater flexibility is secured in that with a direct wire line to the airport (which is a necessity), and with one channel on each plane working on the division artillery channel, there is usually available on call for special missions a maximum of ten planes. This reserve is essential as experience has shown that there may be certain hours, usually late in the afternoon or early evening, when there are more missions than two planes can handle. Further, when the plane picks up a target of opportunity its report comes directly to the division artillery S-3, who informs the plane what battalion to adjust, after which the plane communicates directly with the adjusting battalion. Or, as often happens, the mission is assigned (through prior arrangement) to a corps artillery battalion and is adjusted through the division artillery FDC by radio and wire. Conversely, the division artillery has handled many missions from the Corps Artillery Air OPs. Thus with a minimum of delay and communications tie-up any observer can fire any battalion in the division sector, and in case of necessity reserve planes are immediately available for use.

Attached units are handled in the same manner as organic battalions. Upon attachment the air sections report to the division artillery air officer, who takes them under his control and handles them exactly the same as he does the organic sections. As many as three attached units have been handled with no difficulty, and in every case not only has this organization been acceptable to them, but they have been enthusiastic about it. It makes their work simpler and easier and more efficient.

No argument is needed to support the statement that with the air sections operating as a unit there is closer supervision of performance and maintenance of planes. Up to date no planes have been lost or damaged due to mechanical defects, or accidents, the total losses of material being:

	In Air	*On Ground*
Planes lost in action	1 (AAA)	0
Planes damaged in action	2 (AAA)	2

In addition to the above, it is felt that the esprit de corps of the air sections is enhanced by their constant associations, and much information of instructional value, not only for beginners but also for experienced observers, is gained by their exchange of experiences. The handling of routine interior guard duty and the manning of the .50 cal AA MGs is simplified by the additional personnel available.

There seem to be only three logical arguments against this type of organization:

(1) It takes away from the battalion commander one of his means of observation, so that when he operates independently he will not be sufficiently conscious of it to use it effectively. The converse of this appears to be true. It appears that cer-

Air OP pilots and observers are greatly responsible for the artillery's magnificent achievements in this war. Their hours are long, their service arduous and nerve-wearing.

Taking cognizance of this situation, the Seventh Army established a rest camp for them high in the French Alps. Here they had a chance to soak up sunshine and fresh air. Sports were available too.

tain units that did not make good use of the Air OPs have been educated in its value by having it *forced* on them by division artillery. And in the one case in which it has been used independently, it was used with excellent judgment and effect and with bold caution.

(2) It groups the planes so that it is (*a*) difficult to find a field that will accommodate them, and (*b*) in case of air attack or shelling all planes are exposed. So far the first disadvantage has not been encountered, and in most cases it has been easier to find one field than four. As for the second, it is a matter of dispersion of the planes on the ground rather than having them on separate air strips.

(3) There is no T/O personnel or equipment to set up the separate mess. This can be done with the addition of one 2½-ton truck, with trailer, for use as a kitchen truck; with sufficient kitchen equipment to operate the kitchen; and with the "loan" of two cooks to operate the Air OP mess. One of these cooks should be able to act as mess sergeant, and care should be taken in selection of a mess officer.

The organization and operation outlined above have been worked out under actual combat conditions and have functioned smoothly and efficiently in all of the different types of combat in which this division has engaged. They have been developed through the necessities of combat over a period of several months, and are offered as a simple but effective means of securing control and coordination of Air OPs.

ARTY/R AGAIN

By Lt. Col. C. V. Clifton, FA

SAYS THE AUTHOR:

I read a couple of articles on "Arty/R" in your November issue, and couldn't refrain from adding a bit, since my battalion (the 698th) first came through with a really successful Arty/R mission under Fifth Army, and has had a long string of experience since that time.

The adjustment of artillery fire by high performance aircraft can have its ups and downs. But the value of this type of observation is clearly demonstrated by the box score from our battalion of 240s in Italy, which had a battery of 8-inch guns attached.

During the 270 days which the battalion was "in the line" between February and December, 1944, British and American squadrons flew for this battalion alone, 260 Arty/R missions. Of these, 198 (or 76%) were completed. Of the 4,449 rounds fired, 4,100 rounds (or 92% of the ammunition expended) were fired on the completed missions. Most of the missions involved two hours of flying time for an observer plane and a "weaver" or protector plane. In good weather missions were flown consecutively, and several times the cannoneers of a section manned the piece for four hours of continuous firing Often while the pilot fought off "flak" the gun crew suffered counterbattery.

Arty/R was used by the 8-inch guns only for registration and surveillance, in preparation for night harassing fires. 20 of the 28 missions were completed.

Highlights of the 178 completed 240-mm howitzer missions are: 90 enemy guns destroyed (probables, close hits, fires started in area, "area well covered," were not counted); one vehicle destroyed (it happened to cross a bridge at which we were shooting); 3 tanks and more than 25 bridges destroyed.

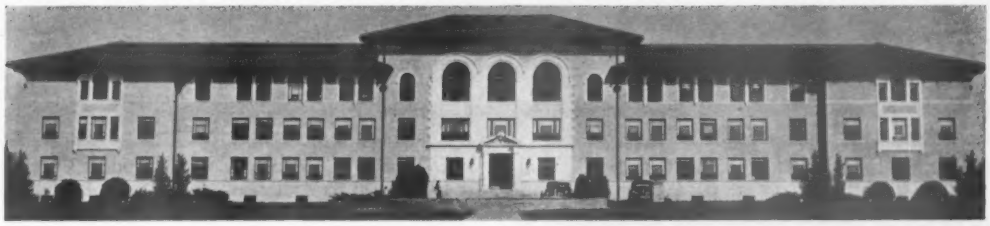
Bridge shoots were part of the Fifth Army program for "isolating the battlefield" before the May 11th offensive, and included the destruction of the famed Pontecorvo Bridge, a huge concrete and masonry affair that was a main Jerry supply link. In the isolation program the battalion-squadron team tackled 17 bridges, and managed to destroy or effectively put out of commission 16 of them. The 17th, the Melf River railroad bridge, was cratered and denied to enemy use, but the damn thing never fell in the river.

One other shoot was memorable. The mission was to crater a mountain road at its hairpin turn, near the town of Esperia on the Kraut main supply route. As was customary, a 155-mm gun battalion was standing by to neutralize any ack-ack that fired on our plane or its weaver during the mission. Their data was also prepared for the target. It so happened that the second round of 240-mm cratered the road, on the hairpin turn, just ahead of a retreating German column of horse-drawn artillery, which was followed by a vehicle column. Both battalions started pouring on the artillery fire, with the pilot adjusting our 240 and giving continuous surveillance to the Long Toms at the same time.

Some of the sensings were a bit off the line of "procedure," such as "Sock 'em again—that's right in the old bucket!" and "Atta baby! Add another hundred and get those damn Jerries running up the hill!" but both S-3s "capished" and we "socked 'em again." When it was all over the Jerries were minus one complete 6-howitzer horse-drawn battery of artillery, some 60 motor vehicles, and innumerable personnel.

On the other side of the ledger were the 62 incomplete missions. 9 were cut short by heavy enemy flak and enemy air activity. The two pilots never failed to "take on" all enemy planes numbering from one to six, but when more than six came out they had to come home. 5 were incomplete because adverse "*K*-changes" put the target out of range for the day. 24 stopped because of poor visibility, but only 4 failed because the VHF 522 radios failed us. One mission became impossible when the enemy smoked the target too heavily, and 20 ended with "engine trouble" or other aviation difficulties. In several instances the reported "engine trouble" was caused by slight pieces of flak intercepting the smooth performance of pilot or plane, who really worked hard at the job.

So for our money, Arty/R is a successful venture. It takes the complete cooperation of the pilots and of the battalion concerned. It demands the unstinting effort of an artillery section staff officer to coordinate the photos, communications, and prearrange the missions.



F. A. S. EVENTS

Department of Communication Notes

The use of photographs for critique purposes on field exercises has been inaugurated in the department. During field exercises instructors take pictures of both good and bad features. During the critique of the exercise these photographs are projected on a screen. Salient features are pointed out and discussed.

Switchboard SB 18/GT has been received. This switchboard is designed for use as a very light, highly mobile, or emergency switching center for local battery telephone lines. It will be used by the liaison sections in light Field Artillery battalions to facilitate communication with forward observers.

The newest technical manual on radio set SCR-610 (TM 11-615, April 1945) states that vehicle manufacturers of the ¼-ton, 4x4 truck are providing a terminal box on newer models for use in connecting power cable of plate supply unit PE-117-C to the vehicle battery. This terminal box is located under the floor just forward of the right rear wheel.

Department of Motors Notes

Lt. Col. O. S. Hulley, Executive, Department of Motors, and Maj. D. A. Stetler, Executive, Motor Course, visited the automotive section of the Infantry School at Fort Benning April 14-21, to observe training of automotive mechanics for Infantry vehicles.

Department of Combined Arms Notes

A demonstration of air fire power by 1st Tactical Air Division, III Air Force, personnel was given preceding the Saturday field exercise, May 5. In the first event twelve P-40s strafed a silhouette field. This was followed by four P-40s attacking targets with 4.5-inch rockets. Then four P-40s burned out the "enemy" with Napalm bombs. Next six B-25s flew by dropping parachute fragmentation bombs, and finally three A-20s laid a smoke screen covering a simulated paratroop landing.

The demonstration lasted 20 minutes and was followed by FEx-A. Then came a two-hour demonstration put on by the Air command consisting of a reduced distance demonstration of one type of tactical application of zone of contact missions, showing equipment used to process mission requests and equipment used to control the mission until the target is attacked.

Col. Sterling A. Wood, Inf, recently assigned to the Field Artillery School, has taken over the duties of Assistant Director, Associated Arms.

Department of Materiel Notes

A conference on Field Artillery rockets is being conducted by the Department of Materiel for the Officer Candidate Course. The instruction includes discussion of the rocket projectile and functioning and maintenance of the mobile launchers used in the Rocket Field Artillery Battalions.

* * *

Maj. Gen. Ralph McT. Pennell, Commandant of the Field Artillery School, returned to Fort Sill on May 3d, following a tour of the battle sectors in Germany, where he conferred with artillery commanders and observed artillery in action to obtain first-hand information on artillery problems for use in training at the Field Artillery School.

Leaving Fort Sill April 1, General Pennell stopped first at Washington, D. C., for conferences and then went to Paris. After visiting the Armies south of the Rhine river he went to Belgium, then returned to Germany for observations with units in combat. Following the tour on the continent, General Pennell went to England where he visited the British Artillery School at Larkhill.

* * *

Brief ceremonies before duty hours were held at the Field Artillery School, May 8, marking the end of the war against Germany. Students, members of the Staff and Faculty, and Detachments assembled in their various areas. After the V-E day message of Maj. Gen. Ralph McT. Pennell was read, the national anthem was played at formations. The troops then were dismissed for the regular duty schedule of the day.

* * *

Col. Lloyd S. Partridge, formerly with the War Department G-3, has been named S-2 of the Field Artillery School. Col. Partridge succeeds Col. Francis H. Boucher, who left on a special assignment.

* * *

Members of Class No. 11 of the Army and Navy Staff College visited the Field Artillery School on April 26-27. The officers were welcomed at the opening session by Brig. Gen. George H. Paine, Commanding General of School Troops and Acting Commandant of the Field Artillery School. Students in the class included senior ranking officers of the Army, Navy, and Marine Corps and several British and Canadian officers.

* * *

Announcement has been made of the formation of Rocket Field Artillery Battalions equipped with mobile launchers firing 4.5 rockets. Development of the rocket units has been in

the hands of a Rocket Board organized at Fort Benning March 1, 1944. The Board moved to Fort Sill in January of this year.

Members of the board are Col. Karl C. Greenwald, president, Col. A. R. McKechnie, Col. Myron Leedy, Col. H. G. Sydenham, Lt. Col. William H. Harton, Lt. Col. S. T. Wallace, Lt. Col. W. H. Frick, Capt. H. I Raymond, and Capt. F. E. Culp. Branches of service represented by members of the Board are Field Artillery, Infantry, Ordnance, and Chemical Warfare Service.

* * *

The 519th Field Artillery Battalion, commanded by Maj. Otis Schweiter, arrived at Fort Sill April 29 to become a unit of School Troops of the Field Artillery School. The battalion, a 105-mm howitzer outfit, was activated at Camp Robinson, Ark., April 17, 1944. Staff officers and battery commanders are Capt. Julian S. Williamson, S-1; Capt. Edwin W. Rochon, S-2; Capt. Mike Rinehart, S-3; Capt. Louis Napoleon Goethel, S-4; Lt. Benjamin Arkin, Headquarters Battery; Lt. William P. Hedrick, "A" Battery; Capt William A. Roughen, "B" Battery; and Lt. Eldon L. Davis, "C" Battery.

* * *

Maj.-Gen. O. M. Lund, C.B., D.S.O., Director of Royal Artillery, British Army, accompanied by five other senior ranking British officers, visited the Field Artillery School May 14 as one of the stops on his tour of military installations in Canada and the United States. Other members of the party were Maj.-Gen. F. H. N. Davidson, C.B., D.S.O., M.C., Col. P. R. D. Spurgin, S.O., R.A., Col. G. P. Gregson, D.S.O., M.C., Lt.-Col. N. R. Grimston, D.S.O., M.C. (all of the British Army Staff, Washington, D. C), and Maj. E. M. P. Holmes, R.A., staff officer to General Lund. The visitors were accompanied by Col. N. P. Morrow of the G-3 Section, Headquarters Army Ground Forces, Washington. Among Fort Sill officers who accompanied the guests on their tour here was Brig. Gen. Raymond E. Lee, Assistant Commanding General of the Replacement Training Center, who was formerly United States Military Attache in London and a friend of General Davidson.

Following visits to the various departments of the Field Artillery School, including a demonstration of the latest developments in field artilery rockets, the visitors were guests in the evening of Maj. Gen. Ralph McT. Pennell at a dinner in the Fort Sill Officers' Mess.

* * *

Personnel Changes, April 14-May 18

Arrivals

Name	*New Duty*
Col. Lloyd S. Partridge	S-2 Section
Col. Sterling A. Wood	Dept. of Combined Arms
Maj. Charles T. Ames	Dept. of Observation
Maj. Elwood B. Cooper	Dept. of Combined Arms
Maj. John W. Jaco	Dept. of Observation
Maj. Peter F. King	Dept. of Combined Arms
Maj. Richard P. Mohlere	Dept. of Motors
Maj. Hugh P. Osborne	Dept. of Observation
Maj. Vernon E. Pellow	Dept. of Observation
Capt. Harry B. Baskette	Dept. of Gunnnery
Capt. Frank W. Brigham	Dept. of Observation
Capt. Frank Carter	Dept. of Observation
Capt. Norman H. Davis	Dept. of Combined Arms
Capt. Hadley C. Galleher	FAS Detachment
Capt. Ottis H. McFarland	Dept. of Observation
Capt. Dominick T. Ortino	Dept. of Observation
Capt. Edwin E. Reed	Dept. of Observation
Capt. Ferdinand F. Weise	Dept. of Observation
Capt. Thomas A. Willett, Jr.	Dept. of Observation
1st Lt. Harold C. Anderson	Dept. of Observation
1st Lt. Stephen K. Clarke	Dept. of Observation
1st Lt. George J. Cummings	Dept. of Motors
1st Lt. Franklin H. Dubsky	Dept. of Observation
1st Lt. Joseph A. Hill	Dept. of Observation
1st Lt. Charles A. Hunt	Dept. of Observation
1st Lt. Lawrence S. McCollum	Dept. of Motors
1st Lt. John E. Morgan	FAS Detachment
1st Lt. Cornelius R. Neal	Dept. of Air Training
1st Lt. Carl Kozlofsky	Dept. of Observation
1st Lt. John F. Schoen	Dept. of Observation
1st Lt. Clarence R. Snyder	Dept. of Motors
1st Lt. Edwin H. Stewart, Jr.	Dept. of Observation
1st Lt. William R. Vehle	Dept. of Observation
1st Lt. Louis J. Zupancic	Dept. of Observation
2nd Lt. Robert M. Wilson	Dept. of Air Training

Departures

Col. John U. Ayotte	AGF Replacement Depot No. 2
Col. Francis H. Boucher	AGF Replacement Depot No. 1
Col. Warner W. Carr	Army & Navy General Hospital, Hot Springs, Ark.
Lt. Col. Donald G. McKnight	E.T.O.
Lt. Col. Jack W. Newmann	Field Artillery Board
Lt. Col. John L. Thompson, Jr.	FAORP, Fort Sill
Maj. Ernest W. Anderson	The Armored Center, Fort Knox
Maj. Paul H. Briggs	Mayo General Hospital, Galesburg, Ill.
Maj. Gilbert A. Ellman	AAF Regional Hospital, Sheppard Field, Tex.
Maj. Edward H. Guthrie	Borden General Hospital, Chickasha, Okla.
Maj. Ellis L. Jacobson	AAF Regional Hospital, Sheppard Field, Tex.
Maj. Robert G. Ragsdale	FAORP, Fort Sill
Capt. Thomas E. Bailey	172nd Evacuation Hospital
Capt. George W. Byrd, Jr.	FAORP, Fort Sill
Capt. Robert B. Bustard	FAORP, Fort Sill
Capt. Leslie J. Klotz, Jr.	AAF Regional Hospital, Sheppard Field, Tex.
1st Lt. Edwin R. Booth	Office of Strategic Services
1st Lt. Francis M. Bradley	FAORP, Fort Sill
1st Lt. Max E. Brown	Air Training Student Officers' Pool, FAS
1st Lt. Luciano L. DeFrancesco	Air Training Student Officers' Pool, FAS
1st Lt. Harold V. Gwyn	Air Training Student Officers' Pool, FAS
1st Lt. Charles S. Howe	U.S.M.A., West Point, N. Y.
1st Lt. Rawlins M. Morris	Air Training Student Officers' Pool, FAS
1st Lt. Arthur E. Peltosalo	Air Training Student Officers' Pool, FAS
1st Lt. Alex J. Planutis	FAORP, Fort Sill
1st Lt. Woodrow W. Porter	Air Training Student Officers' Pool, FAS
1st Lt. Phillip Thomas	AAF Regional Hospital, Sheppard Field, Tex.
1st Lt. Lemuel E. Weir	Transportation Corps
1st Lt. Kenneth E. White	Air Training Student Officers' Pool, FAS
2nd Lt. James W. Phillips	FAORP, Fort Sill
2nd Lt. John C. Henley, III	Office of Strategic Services
2nd Lt. John C. Ringhisen	FAORP, Fort Sill

Digging in west of Bastogne 17 Dec 44, to meet the German counterattack

ARTILLERY'S PART *in the Bastogne Break-In*

By Capt. John H. Merriam, FA

WITH 94TH ARMORED FIELD ARTILLERY BATTALION OF THE 4TH ARMORED DIVISION ON THE WESTERN FRONT.—Most movement in our type of warfare is restricted to roads—especially German movement, because of poor equipment. Towns and crossroads control road nets; consequently the controlling factors in the conquest of territory are the occupation of towns and the flank protection of highways. This is particularly true of armored spearheads in the advance.

We have demonstrated repeatedly that, properly planned and executed, a tank-infantry-artillery attack upon a town, against considerably larger forces, will result in rapid capture of the town with small losses to ourselves. The attack on Assenois, Belgium, is an excellent example of such combined tactics successfully employed. With Assenois secured, the tanks and infantry proceeded to break open the route to besieged Bastogne.

Assenois was found to have been defended by 7 antitank guns, a 4-gun battery of 105s, and personnel amounting to approximately one battalion. The assault force, comprising 6 medium tanks and one infantry company in half-tracks, took the town at the cost of one half-track and about 8 casualties. Enemy losses were 482 prisoners and an estimated 100 dead.

The role of artillery in such an advance is important. In direct support of the assault force was one battalion of 105s with one battery of 155 hows attached. The reinforcing fires of 3 battalions (2 battalions of 105 and 1 of 155 hows) were available through Division Artillery.

In this type of fighting all arms fall under the jurisdiction of the tank battalion CO. He orders artillery fire through the liaison officer assigned by the direct support battalion. The liaison officer stationed with tank battalion headquarters exercises the extremely important function of making the artillery sensitive to the sudden demands of armored warfare. His requests for fires must receive immediate compliance.

While the tanks and infantry were being deployed the tank battalion commander asked for all available artillery fire on the town, at his command. He also requested continuous fire on the woods to the north and northwest. Tanks and infantry should be in motion when the artillery began to fire. The distance from defiladed position to town was about 1,200 yards. The command to fire was given as soon as the attack jumped off.

The three reinforcing battalions fired Bn 10 on the town. "D" Btry (the 155s in direct support) fired Btry 5 on the center of town. "B" Btry of the direct support battalion fired Btry 2, zone, with a normal sheaf that covered most of the near edge of town. "A" and "C" of the direct support battalion each fired Btry 2, zone, on the near edges of the woods which flank the town on both sides to the rear, following which they fired continuous battery salvos at 10 seconds. This fire outside the town is important, since it neutralizes antitank gun crews and bazooka teams posted to protect the town against frontal assault.

This sudden, heavy shelling drove the enemy into cellars and blasted apart many buildings, setting some aflame. The tank battalion commander testified, "The ground just seemed to pitch up and down!"

As the assault wave reached the town, the three reinforcing battalions were ordered to cease firing. "D" Btry shifted its fire from the center to the rear of town. "A" and "C" continued to cover the woods.

Entering town, the tanks actually drove into our artillery fire. The infantry, riding close behind, in this instance suffered several casualties from our shelling. But if the enemy is granted any respite between our shelling and the infantry assault, it is certain that he will inflict far larger losses.

Attacks of this nature have succeeded against forces much larger than those defending Assenois. Sometimes the situation may require smoke on a flank, or fire delivered upon overlooking points. A competent observer, advantageously posted apart from the assault force, can give "Cease firing" when the attackers close in. While they are occupied with mopping up and consolidation he can bring artillery to bear on counterattack or on such targets of opportunity as escaping infantry and vehicles. The observer must always be alert for the first opportunity to move through the town to the next high ground beyond it. He can do this when the tanks have moved through the town and are outposting it.

The whole technique of such an assault can be summed up thus: Plan thoroughly for a fast, short, intense bombardment of the town by artillery. Bring down the fire when the assault force starts to roll, and lift it at the last possible instant consistent with safety. Nothing must be allowed to impede or halt the assault, or to diminish its fury. It takes good artillery—artillery inspiring the utmost confidence in tankers and infantry—to support a headlong charge toward a hail of high explosive.

This technique is not new. The proven principles of concentrated fire power and close coordination of arms are exploited to the fullest. It is a battle-proven formula.

Route Reconnaissance — The Hard Way

By S/Sgt. Raymond W. O'Connor, FA

It all started when Sgt. Lazarow asked me to ride along to Verdun with him to pick up supplies. There were no detailed maps of the route available but we decided to trust to luck, sign posts, MPs, and the North Star if necessary. Our first attempt was a failure—a dead-end road or cow trail on a hill-top. We turned around and started again. Soon we spotted a couple of engineers. We asked them for directions and were told to go by the way of Mirecourt through Repel.

Our walking information booth was a little careless in that he neglected to inform us that the Krauts still held Mirecourt and numerous villages on the way. We didn't know this, so we proceeded on our merry way to Verdun.

A mile or so out of Repel we noticed something burning on or near the road about half a mile ahead. We couldn't make it out so we kept going until we came around a curve and saw a road block with a burning American 6x6 near it. As we were turning around we were fired on by small arms. Neither of us wasted any time getting out of the truck and hitting the ditch. Laz went out over the tire pretty fast, but I figure I set a new record in dismounting. They fired at us until we were in the ditch (Laz on one side of the road and I on the other). They must have been pretty poor shots because they never touched us. A few minutes later three or four German infantrymen came sliding up to the ditch where I was lying. One had already captured Laz and all had an exceedingly businesslike look about them. They indicated to me that it would be wise to surrender—and with our guns still in the truck they seemed to be right. I stood up with my hands overhead, but some wise guy took another shot at me so I went to the prone again, but quick. The Kraut covering me stopped them so we got up and started back to their company.

We were taken to their CP in an orchard near a small town where we were searched and asked our name, rank, and ASN, and not much else. A short time later we were put in a car and taken back to Mirecourt. On the way one of our planes passed overhead. The crew in the car ahead stopped and jumped into the ditch. The plane went by so we kept on our way.

Mirecourt turned out to be nothing more than a change of cars plus the usual curiosity of the Heinie rear echelon Joes. We were invited to join them in a trip to Mittaincourt, and accepted at their insistence.

Last fall in one of the operations across France a large pocket of Germans was left far behind in the vicinity of Mirecourt. Before a unit of a French Armored Division eliminated them, Staff Sergeants Raymond W. O'Connor and John T. Lazarow were sent to Verdun to get supplies for the 173d Field Artillery Group, up with the advance elements of the XV Corps. This is the story of that trip—*Maj. R. L. Dewey, FA*

Near St. Lo this 155-mm howitzer was caught in full recoil.

At Mittaincourt, which I assume was either a regimental or division command post, we were taken to a convent which was to be our home for the time being. We were questioned in a group (another American, the driver of the burning 6x6, had joined us by this time) about the number of tanks we had, our unit, etc. When we refused to answer we were told that we'd be forced to talk, but they dropped the subject when reminded of the Geneva Conference Rules of War. We were then issued cots, blankets, and a candle. Three guards, one of whom could speak good English, were placed outside the door.

For breakfast the next morning we feasted on brown bread, jam, and black coffee. There was some butter that none of us touched since it looked as if it had ground glass in it. Frankly, the coffee tasted as if it had ground in it—period. The realization of the spot we were in hit me about then and I felt lower than a snake's insole.

More planes came over that morning and were bombing a short distance from town. The Germans feared our planes and were careful not to walk in the open even in town.

A short time later we were questioned separately by an officer who spoke excellent English. He offered me a cigarette and a chair. I took both, and was asked my name, rank, and ASN again. Then he told me what outfit and what corps I was in. I assumed he got this from the vehicle bumper. He asked me to confirm this identification, but I refused. He then asked me my length of service, date the outfit came overseas, whether we had been on the invasion, what division we were in, our personal reaction to our capture, and how we were being treated. I told him that I couldn't answer any of his questions. He then asked me if I had any requests, but when I asked for water to wash and shave he refused on the grounds of a water shortage. I believe he was telling the truth.

After the interrogation I was taken into another room where the Kraut EM lived. One of them, about 35 to 40 years old, came over to talk and to bum an American cigarette in exchange for a German one. We traded but I got the rotten end of the deal because their cigarettes stink both literally and figuratively. He asked when I thought the war would be over and who would win.

Then came dinner with noodle soup, brown bread, and more

liquid mud. Since we were pretty hungry we licked the buckets clean, but I still prefer C or K rations to their grub.

About 1400 that day American shells started hitting the town so we were taken bag and baggage to the boiler room. We weren't alone, however, because the Heinies figured it was a safe place too. A few shells landed near enough that fragments came through the windows.

One of the Krauts asked Laz if he were married; Laz said he wasn't. Then he asked how many kids Laz had. Laz told him that in the States we have kids after we're married. They laughed long and loud at that.

Supper that evening consisted of the same old brown bread and canned sardines.

Next day we heard plenty of small arms fire and one cub came over. I asked them if the rifle fire was aimed at the cub or ground troops, and was informed it was the latter.

I had spent a good share of my time in praying that the town would be taken before we were evacuated any further, so the shooting was music to my ears. Evidently my prayers were answered, because that afternoon we were told to grab our things and follow them. With sinking spirits (we thought we were being evacuated) we followed to the main street.

Down on the main drag were some 50 or 60 Germans, still armed but in three ranks, being told the score by one lone French soldier with no helmet, no leggings, denim trousers, wool shirt, and a carbine slung over his shoulder. The French soldier came over to us, told us we were free, and shook hands.

The rest of the French unit in half-tracks came into town. Shutters opened, flags appeared. The people cheered, but they were quiet compared with my dancing, cheering, and hand shaking. Never was Allied solidarity more complete. I realized then how the French feel when their towns are liberated.

A French officer ordered the Germans to disarm. That's about all there was to it.

The Heinie raced an 8-incher to the pillbox . . .

AUTHOR'S NOTE

After this war there'll be a sort of get-together at the 19th hole, where artillerymen will brag about their good shots. The first ones to speak will get listeners without stretching the facts altogether beyond recognition. So maybe I'd better tell now mine of the 736th Field Artillery Battalion.

·By Capt. Robert Edgren, FA

THE 19th SHELLHOLE

You don't have to believe this just because the firing was done by an 8″ howitzer. The eight-inchers are good—but not ordinarily *that* good.

The crew on number three had gotten a pretty fair adjustment on a pillbox. Range, 7,000 yards. It took about two and a half minutes between rounds, including time of flight, sensing, computing, and loading.

During each lull a battle-wise Heinie would come out of the box to see what the damage amounted to.

"There's the son of a bazooka now!" yelled the observer. "He's left the door open — hurry it up — two five over!"

The howitzer crew rammed a shell home in half the usual time and sent it whizzing on its way.

"Too late," groaned the observer. "He's going back already. He's closing the do——Wow! *That* one went right in with him! You oughta see the concrete flying out the windows!"

* * *

When the Third Army halted before the forts at Metz there was good hunting for a while. But it had to be precise. The Jerries would run a field piece up into a concrete emplacement at night, camouflage it, and open fire at daylight.

Then planes would go up to spot the flashes, and that is how the Germans happened to develop the Flying Howitzer, model V3. Of course the Yanks assisted in its development.

It was *very* hard to slip a round down into those emplacements. If your rounds landed outside, Jerry just cackled and went right on firing at you. The Cubs couldn't see well enough to adjust on one of these German guns, so a high performance plane was sent out. It evidently had a high performance

pilot in it too, because he had fire on the enemy gun after four rounds.

"Target!" he roared. "That gun is coming up in the air, turning over and over—your last round landed right underneath it—the wreckage is now tumbling to the ground in rear of the gun pit."

* * *

At one time we were with a group that acted as one of the Corps Fire Direction Centers. To keep all of us on our toes they would occasionally give a one-round fire mission, call for fire by battalion, and have an air observer watch each round. To escape embarrassment it paid you to be fast and correct.

We were phoning down the commands on one of these missions when a metro came in, showing a big change in the weather. I had a look at it and chirped: "Scoggins, you'd better boost that range a hundred and fifty yards."

He did—just as the command came to fire. We crossed our fingers and shut our eyes. There was an awkward pause. Then the observer's laconic voice over the radio:

"One zero over."

We began to breathe again; figured the metro, and found that it called for approximately the effect we had applied. Meanwhile the radio was reporting results from other battalions:

"Lost!"

"Four hundred over!"

"One five zero left, two hundred over!"

"Lost!"

(The target was in deep woods in hilly country—tricky as the devil.)

We in Fire Direction silently shook hands.

* * *

Once in a lifetime a day comes along when everything goes right. You are relaxed. You feel as if you could step up to the plate and bang one over the fence. This makes up for the days when you perspire icewater, strike out, and hit yourself on the toe when you drop your bat.

We had one good day when we moved up behind a protective screen of 150 reconnaissance cavalrymen, 25 of whom were holding the front line. The Germans were not disturbed by this array of power and walked around indifferent to all the maxims of concealment.

First we hunted for a crossroads to register on. The sky was heavy with overcast; the plane was down and the value of crossroads was way up.

At that moment the observation battalion phoned in, "A German staff car just parked on the crossroads at [a long, painfully exact coordinate]. Will adjust."

They did. One round landed in the front seat of the staff car. It started both their day and ours with a bang.

A cavalryman then reported a pillbox. He had never had any great training as an observer, and almost hit himself on the head with the second round by sensing the whereabouts of the target instead of the burst. After this minor difficulty was straightened out, in the next 11 he got three hits—rounds which (1) enlarged the embrasure, (2) set afire the ammunition inside, and (3) blew the back out. We thought of the dozens of rounds we had shot at other pillboxes without any more effect than scratches and nicks, and shook our heads.

Our own observer found three houses into which Nazi soldiers were wandering from time to time. On a hunch he put a few rounds into each. Thirty minutes later medics were swarming in and out like ants.

You wouldn't believe it, but the next thing was that a company of German infantry marched down the road in close order. The observation battalion saw this and had accurate dope. What air bursts those 200-pound shells made!

Not very long afterward 50 more Jerries, unaware of the fate of the first, marched out onto the same road a few hundred yards further up. Same effect.

Finally our luck turned. A colonel whose group we had joined that day walked into Fire Direction, placed a firm finger on the most inaccessible portion of the map, and said: "You will get a check point *there*."

We called up the pilot. Dusk was falling. His reply:

"I wuz lookin' in there last time, and I didn't see *anything*

The pilot sounded discouraged . . .

and it's just about dark, and visibility is terrible, and that's 16,000 yards out, and you kin hardly even fly. But if you want it, *I'll try*."

So he did. He saw a lonely stone house, far from the nearest village—not a soul around it. Range, 15,500. He opened fire. 300 short. Time was a-wastin'. It *was* in an awkward spot—sidehill, amid patches of forest.

Wham! The second round landed.

"That hit the house," radioed the plane, "and whadday know! It's flaring up, bright orange; now it's going out. No Flaring up again! The damn thing's chock full of ammunition and you just set it off."

We were glad to call that end of mission.

Confidence in artillery is assurance that it is in the best possible condition, which is brought about only by never-ending inspection and servicing. If you do not let up on preventive maintenance, then your pieces will never let you down.

4.5-Inch Battalion Fire Direction in Combat

By Maj. John T. O'Keefe, FA

Under field conditions our 772nd Field Artillery Battalion houses its FDC and S-2 Section in two command post tents placed end to end. Each section operates in one of the tents. Each computer has a chest made from a 105-mm howitzer ammunition box, with one side hinged to provide a lid. The chest serves both as a seat for the computer and as a case for his equipment. His telephone is mounted in one end of the chest, with an opening cut in the side to accommodate the telephone crank.

Since ours is a long range battalion we found it necessary to construct a large table (60" x 48") to accommodate the firing chart. The table was constructed of 1¼" white pine boards with oak reinforcing strips. Folding steel legs facilitate transporting the table and setting it up for operation. When it is set up the group fire direction phone is fastened to one leg and the FD No. 1 phone to another, placing both within easy reach of the S-3. A sheet of clearseal cellulose on the firing chart protects it from the weather and carries the no-fire line and the fire possibilities rays.

To facilitate the computation of metro corrections a display board has been constructed. This shows for each battery the azimuth of the center line, the velocity error, and the deflection correction change.

The FDC is lighted by a power unit (PE 75) or by kerosene lanterns, depending upon the proximity of the enemy.

As for communications, each battery upon occupying position immediately lays a direct line to the FDC and turns it over to the battery computer. Battalion headquarters battery lays the trunk lines to the batteries and establishes the usual CP wire net. Because cross talk is eliminated, the direct line has proved much more satisfactory than the simplex line. If the direct line goes out the trunk line can readily be simplexed for fire direction.

Combat operations have pointed out the value of constant and progressive training for fire direction personnel. During slack periods we conduct fire direction drill in conjunction with service of the piece for the firing batteries. All fire direction personnel are rotated in the various jobs until each can perform efficiently the duties of any other member. In addition to straight fire direction practices, training is conducted in the following subjects: Principles of air observer methods and forward observer methods of adjusting fires, prepared fires and preparations, methods of attacking targets, construction of fire possibilities overlays, shell reports, importance of observed fire missions to the S-2, and the capabilities and limitations of firing batteries. It has been found that a knowledge of the above subjects does much toward adding interest to the work of the fire direction personnel.

Knowledge of the problems which confront the firing battery leads to mutual understanding and cooperation between a computer and his battery. A training scheme is employed which provides for a man from the detail of one of the firing batteries to work at the FDC until he is thoroughly qualified in the duties of HCO, VCO, and computer. This man, since he usually has seen service as a member of an OP party or a forward observer's party, can give the computers a good insight into the problems of the observers. Furthermore, these firing battery personnel constitute a reserve available in case any of the regularly assigned members becomes a casualty. These men are rotated so as to keep the fire direction group from each firing battery in a good state of training. A competitive spirit is fostered during all phases of training and operations.

With speed in view the battalion has adopted the following practices. A loudspeaker (LS-3) is coupled with the remote control unit of the SCR-608 radio which is used as a primary base set, so the S-3, HCO, VCO, and computers hear the coordinates and nature of a target as they come in by radio. The HCO and VCO plot the target as they hear the coordinates. The S-3 checks the plot as it is made and, checking the fire possibilities rays, announces the battery or batteries to fire. Each computer to fire immediately alerts his battery. The S-3 then completes his directive. The adjusting computer acts on the sensings as they come in over the loud speaker.

When the mission comes in by telephone the person receiving it immediately alerts the FDC and gives the initial data and subsequent sensings in a loud voice. Then the procedure is the same as for a mission coming in by radio.

The computer gives his commands at the same speed as that with which the executive gives them to the firing battery. The telephone operator at the firing battery keeps his switch open, enabling the computer to hear the commands as they are passed on.

The accompanying form is a part of the computer's record that is used for time fire adjustments. It provides the computer with an easy way to keep track of the site during a time fire adjustment. It also facilitates the replot of a target since it shows at a glance the adjusted site and the adjusted elevation. Figures to the left of the inclined line in the sight column represent the changes in site which occur during the adjustment; their algebraic sum represents the net change in

	Shift	Time	Elev	Site	Quad
Initial site			200	+8	208
Following a "graze" sensing			200	+5/+13	213
Following a "mixed" sensing.			200	0/+13	213
Following a "mixed, fire for effect" sensing.			200	+3/+16	216
				+8, +16	

Net site change ↑

Adjusted site (includes 20/R) ↑

Note: For simplicity the elevation in the example has remained constant and the figures for shift and time have been left out.

site resulting from the adjustment. Figures to the right of the inclined line represent the amount of site in each quadrant; the bottom entry represents the adjusted site. The VCO puts in an additional 20/R when he announces the initial site and strips 20/R from the replot site announced by the adjusting computer.

To provide for a 24-hour operating schedule we have two fire direction teams in the headquarters battery. Under normal operating conditions these crews work in 24-hour shifts. The S-3 and S-2 work with one shift; their respective assistants constitute the officer personnel of the other shift. This arrangement has worked out very well since it provides for a maximum amount of sleep for each crew. Of course, in a fast-moving situation with frequent displacements the schedule is interrupted, and during prolonged periods of heavy firing both crews are used to spell each other. In general, though, the system works very well.

Both S-3 and Asst. S-3 make frequent visits to the firing batteries to discuss mutual problems and promote better coordination. This practice pays off when the going gets tough.

TRENDS in Field Artillery Organization & Equipment

Although this column announces only approved changes, it does not constitute authority to requisition personnel or equipment listed herein.

By Maj. Shirley B. Metzger, FA, and Maj. Irvine F. Belser, Jr., FA

A change to T/O & E 6-129, Service Battery, Motorized, Field Artillery Battalion, 155-mm Gun, Self-Propelled, to provide two (2) additional truck drivers, two (2) additional 2½-ton trucks with 1-ton trailers, and 340 additional 5-gallon gasoline cans, is now in the hands of The Adjutant General for publication and distribution. This personnel and equipment are intended to increase the gasoline resupply capacity of the battalion, and of course also the gasoline basic load mileage, to a point commensurate with the heavy gasoline consumption of the battalion's gun motor carriages and ammunition carriers.

The Chest CY-250/U has been standardized to provide storage and transportation space for miscellaneous second echelon spare parts for Signal equipment. Basis of issue depends upon the amount of Signal equipment authorized the unit and varies from three (3) chests per headquarters battery of infantry division artillery battalions to one (1) for most types of firing batteries. Allowances for airborne units are somewhat reduced because of the limited transportation available to these units. No allowances are included for organizations such as service batteries, in which the amount of Signal equipment authorized is small, or for pack artillery except when the motor platoon is provided. The chest is a sturdy, water-resistant plywood container 21 x 19¾ x 20 inches, with sufficient capacity to hold approximately a month's supply of the spare parts normally required, and weighs about 55 pounds empty. The door or lid of the chest has combination hinge clamp fasteners so that it may be opened doorwise to completely removed. The door and the seat of the chest are equipped with neoprene gaskets to render the chest waterproof. The chest is reinforced with battens to withstand field usage.

A new version of the bazooka—the Launcher, rocket, 2.36-inch, M18—will replace the M9A1 launcher in all field artillery tables of organization and equipment. In order to use up the existing large stocks of the M9A1 launcher, authorization of the M18 launcher in all artillery tables, except for airborne units, will include a qualifying remark that the Launcher, rocket, 2.36-inch, M9A1 will be issued in lieu thereof until exhausted. The M18 launcher employs aluminum alloys in its fabrication and weighs only 10.5 pounds, less than two-thirds as much as the M9A1. Other than in weight, its military characteristics are the same as those of the M9A1.

The Bag, canvas, water carrying, 5-gallon, has been standardized with a basis of issue which includes field artillery units on the basis of one (1) per sound outpost and one (1) per flash OP in observation battalions; one (1) per forward observer section; and one (1) per liaison section. Designed primarily for infantry units, this bag provides a means of man-packing water into forward areas or otherwise inaccessible spots where vehicular transportation is limited. It consists of a plastic liner and a canvas container fitted with shoulder straps for ease of carrying and a spigot of the Lister bag type to permit filling canteens without wasting water.

The present Compass, wrist, liquid-filled in field artillery tables is being replaced by the Compass, wrist, induction-damped. Employing a new principle of induction-damping rather than liquid to bring the needle to a quick stop and prevent fluctuation, it is approximately the same size as the liquid-filled model and provides an efficient waterproof, wrist-type, marching compass suitable for day or night use.

A new carriage for the Howitzer, 155-mm, M1A1, has been standardized as the M1A2. The major difference between the M1A2 carriage and the M1A1 is an improved firing jack. The rack-and-pinion jack of the M1A1 carriage is being replaced by a screw-type all-inclosed jack which is characterized by greater ease of operation and considerably better wearing qualities.

The Carriage, motor, 155-mm gun, M40, has been standardized to replace the M12 gun motor carriage, with the same basis of issue. The M40 consists of the M1 155-mm gun mounted on a widened M4-series tank chassis, instead of the GPF 155-mm gun on an M3-series chassis as in the M12, and will have the same advantage in range that the M1 gun has over the GPF.

A Deflection Fan that Masses Fast

By Maj. Robert H. Cronin, FA

Our FDC set out to remedy delays in replotting, and arrived at both speed and accuracy with the method described below. It was used successfully by this unit (the 204th FA Bn) in Battalion Firing Tests I, II, and III prior to leaving the States, in the final stages of training in England, and throughout extensive combat firing in Europe.

Construction

As the availability of materials is always a criterion of any project, it might be well to state that this fan was constructed from a piece of used paralin plastic from a Cub plane, enough India ink to draw a few lines, and a needle strong enough to do a little scratching. About six hours' work will accomplish the finished product.

The method can be more clearly demonstrated by first describing the construction of the fan. Taking an ordinary deflection fan as a pattern, and using the same length, cut a fan with 600-mil arc. Draw a center line at the 300th mark down to the vertex. The mils, of course, are marked off on the perimeter, using a deflection fan as a model. The range is marked down the center line (just drawn), using the fan again for correct measurement. With a needle or other suitable device, then scratch through the plastic on this line from about Range 2,000 to the range of your weapon, allowing material enough at the perimeter to substantially hold the fan together. This slit (see *b* of Fig. 1) should be wide enough

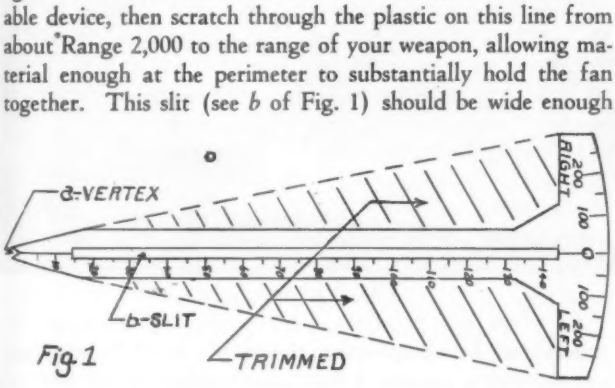


Fig. 1

to allow the free movement of a plotting pin but not loose enough to allow side-play. The sides may now be trimmed, if desired, as shown in Fig. 1.

The center line scratched at the aforementioned 300th point is marked zero, and mils right and left marked off up to 300 mils. The right hand sector is marked "Left" and the left hand sector marked "Right." This center line hereinafter represents the line of direction of the base piece of each battery.

Use

A fire mission progresses as follows: The firing chart is as usual, with base line extensions in the normal manner. The target is plotted by coordinates or with reference to the base point, and the pin stuck into same through the slit in the fan. To measure the range and shift for each battery, place the vertex of the fan on the desired battery plot and read, keeping in mind that the center line is where the tube points. Reading the left side of the fan is a right shift, and *vice versa*. Without moving the target pin, repeat the process for all batteries.

At this point the HCO puts a pencil mark at the zero line for each battery, *Red* for Able, etc. In our case we make an index for each battery out of the same plastic, as shown in Fig. 2, using two map pins and some airplane glue to put them together.

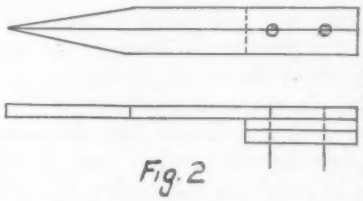


Fig. 2

The HCO follows the shifts and ranges of the adjusting battery, or in the case where another battalion adjusts, plots the corrected coordinates and shifts the fan to the correct target plot. The shifts to the batteries to fire for effect are now read directly to the new point by a shift right or left from the pencil marks and a new range; the process parallels the Gunner's Aid on a Panoramic Sight. This saves computation on the part of the computers, and as soon as the observer says "Fire for Effect" the non-adjusting batteries can fire as fast as the HCO can read the fan. Because the adjusting battery has to "open," we have found that the non-adjusting batteries consistently fire for effect before the adjusting battery can make it. The battalion is always perfectly massed.

Fuller Explanation

Fig. 3 shows the fan on Baker Battery with the initial target plot as indicated The pin is placed into the plot through the slit in the fan and the vertex placed on Baker position pin. The HCO reads Baker's range as 12,500 and a shift

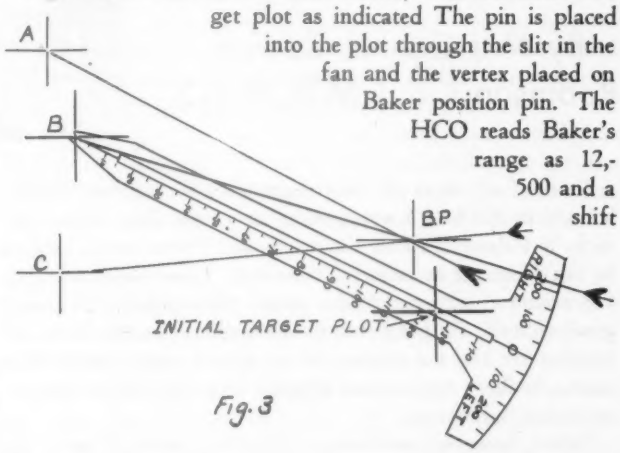


Fig. 3

to the right of 225 mils. An index or pencil mark is put on Baker's zero line at this point. Without removing the target pin, the vertex of the fan is now put on the Able position pin and the range and deflection given to the Able computer. The HCO marks Able's line of direction with an index on the zero line as before. The process is repeated for Charlie Battery. The HCO now has all zero lines indexed and thereby knows in what direction the pieces of all batteries are laid.

To carry on, we shall assume that Baker is adjusting. The observer makes his sensing and the Baker computer dete-

mines the corresponding shift and the requested range. With the vertex put back on the Baker pin, the HCO now lifts the target pin and shifts his fan from the Baker index the same amount and in the same direction as the guns shifted. The target pin is replaced at the range fired and Baker's index is again placed on the zero line. Thus, using the index and the fan in a manner similar to that of the Gunner's Aid, each round may be plotted by the HCO without loss of time and without conversation between himself and the computer. This procedure is repeated for each shift and change of range for Baker until "Fire for Effect" is given by the observer. As the HCO has followed the course of the rounds throughout the mission he automatically has the corrected target plot or "Replot Data." The tubes of Able and Charlie have not been moved, but neither have their respective indices; and, therefore, by placing the vertex on Able's pin and reading right or left from the Able index you have the necessary shift from the initial data to establish the proper line of direction, and the target pin is at the correct range. In the same manner Charlie's corrected data is determined and announced to the computer.

This method has the additional advantage of a check on the adjusting computer's computations. The computer gives the HCO his "100/R." The HCO can now convert the observer's sensings to his fan and thereby catch any error in commands that the computer might send to the guns.

The same general procedure is used when another battalion is adjusting and the Corps Artillery is to be brought in for effect. The approximate coordinates are plotted and data sent to all batteries. The zero lines are marked as previously described. When the exact coordinates are received and plotted, the shifts from the indices for the respective batteries, as read by the HCO, can be sent directly to the guns without computation on the part of the computers. The new ranges are announced in the normal manner.

When you are tied in with a half dozen or more battalions on the Corps FDC net, and you whip out your battalion two minutes ahead of the rest, you feel that the six hours of work constructing the fan were well worth the effort.

Modern artillery tactics include the use of mobile fire-power of all kinds. Here, for example, an M-36 tank destroyer fires its 90-mm gun point-blank at a Nazi pillbox to clear a side street in Brest, France. At left, note the portable steel sentry-box; its lifting ring makes it resemble a gigantic unfuzed projectile.

Modern Artillery Tactics

By Maj.-Gen. H. Rowan-Robinson, C.B., C.M.G., D.S.O.

In the early days of the present war, the artillery lessons learned in 1914-1918 appeared to have lost their value. Attacks in Poland, the Low Countries, and France were executed by the Germans at tremendous speed. There was little time for accurate survey, for the aerial photography of enemy gun-positions; no place for heavy artillery, hardly time for indirect fire and the consequent lay-out of signal communications. Artillery support was afforded largely by direct fire controlled in the battery.

When, however, antidotes to blitzkrieg methods were discovered and war fronts became more or less stable, careful preparation prior to assault became once more the order of the day. There was then a reversion to former methods, applied by instruments which, except for the self-propelled gun and vastly improved radio, did not differ radically from those of 1918.

With the new turn of events, ancient controversies were naturally revived. They were:

(a) In the attack, how should the enemy's artillery be rendered impotent?

(b) Should advancing troops be supported by barrages or by concentrations?

As to the first point the old objections to the direct destruction of hostile batteries prior to the attack were raised, namely, that it was not a man-killing operation and that the cost in material and man-hours of manufacture for the number of shells required to destroy guns was greater than that of the guns destroyed.

There are, however, two other existing methods which are less subject to objection. The first is neutralization—that is, fire only during the actual attack when enemy gunners must at least be attempting to man their guns. That causes casualties to the gun-detachments and makes matters otherwise difficult for them.

The second is stratagem of some sort. For example, the attacking artillery opens with, say, a 3-minute bombardment of Forward Defended Localities (F.D.L.'s). That, naturally, brings the enemy gunners to their guns. Then comes a switch, not alone of special guns detailed for counterbattery (C.B.) work but of every gun in the attacking army, on to counterbattery targets.

In such case the guns required to support the attacking infantry would be pulled off this C.B. work just before zero

hour and the C.B. program would invariably hold some guns ready to fire on any previously unlocated enemy batteries.

These methods, provided that survey and communications have been soundly organized, show good results—but methods require constant change. The new stratagem, however successful, must step down as soon as (or preferably before) the antidote comes into being.

The second question has long been a subject of debate, but more so during this war than in the last because defensive fire-power has enormously increased and undestroyed, unneutralized nests of machine guns or antitank guns have the power of paralyzing movement even more now than heretofore. The immediate counterattack supported by mortars is also a factor.

The respective advantages and drawbacks of using the two methods in any artillery plan may be listed as under:

BARRAGES

Advantages

(1) Cover the ground with fire so that no enemy post should escape treatment.

(2) Furnish real protection provided the pace of infantry and barrage are everywhere equal, infantry move close behind the barrage, and the enemy has been located accurately.

(3) Guide the infantry to the forming-up line and, thereafter, direct their advance to the objective.

Disadvantages

(1) Very expensive in ammunition.

(2) Depend for effectiveness on the occurrence of the expected. When, as is more usual, the unexpected happens, they are difficult to alter.

Two examples of the successful employment of barrages may be given. On the night of the break-through at Alamein, British forces attacked the enemy on high ground which had been in rear of Rommel's position. The pace had been too fast to allow either air-photographs or patrolling to give the data on which concentrations could be fired. A barrage by nearly 200 guns on a front of 1,200 yards was therefore fired without previous registration.

This proved satisfactory, for the following infantry had but little trouble in reaching their objectives. It is to be noted, however, that the enemy had been heavily hammered for many days in succession and was probably in no mood to offer stout resistance.

Again, at Wadi Akarit, a large Axis force was holding some hills dominating the high road to Sfax. The main feature, Djebel Romana, was a rocky hill which it was essential to gain and hold if a break-through was to be effected. Good air-photographs showed all the enemy's F.D.L's and battery positions, but the Djebel itself appeared to be undefended. This, in the case of a key-point, could not be believed possible, so a barrage was laid right up the hill and down over the other side.

It was well this was done, for the hill was packed with enemy. Being in rock, the positions were barely visible even at close range and air-photographs had failed to disclose them.

CONCENTRATIONS

Advantages

(1) Possible to support any particular attack, or a whole succession of attacks, with a large proportion, possibly the whole, of the available artillery.

(2) Comparatively easy to alter program at short notice so as to give most support where most needed.

(3) Much less extravagant of ammunition.

(4) More effective as a man-killer.

(5) Higher psychological effect.

Disadvantages

(1) Useless unless accurately placed on enemy posts.

(2) Liable to omit an enemy MG post or two which might hold up the whole attack.

Again two examples may be given. The much-lauded Alamein barrage was largely not a barrage at all, but a series of concentrations. The infantry were to advance deeply on a wide front—conditions which rendered barrage-fire impossible except, perhaps, for a short period at the start. As first-class maps had been prepared giving exact locations of every enemy post from front to rear of the hostile position, concentrations were likely to be much more effective than a widely distributed hail of shell, the bulk of which would plough harmlessly through the desert.

The second example: in Sicily, in the hills southwest of Etna, the Allies were just preparing to move up to battle-positions for the attack on the Sferro hills when the latest air-photographs arrived. The interpreter quickly spotted that to a flank of the start line was a new and thick MG nest which, if neglected, might bring disaster on the attack. A heavy concentration was immediately laid on it and a battery detailed to keep it under fire during the actual assault. The shell-holes in and around the nest were effective evidence of the value of a concentration where based on a combination of good air-photographs, interpretation, and survey.

It is often possible to combine the two methods with advantage. Short and sharp concentrations, for example, applied on the more powerful of the enemy's strong points enhance the prospects of effectiveness in the infantry advance behind any ensuing barrage.

In defensive action, with good maps and communications available, concentrations placed where help is most required are used. They are of course particularly effective if observers (whether on the ground, in tanks, or in the air) have a good view of the approaches to the position and if communications are good. Many proofs were given of this in Tunisia, where sometimes as many as ten regiments of artillery were concentrated, first on one enemy target, then on another.

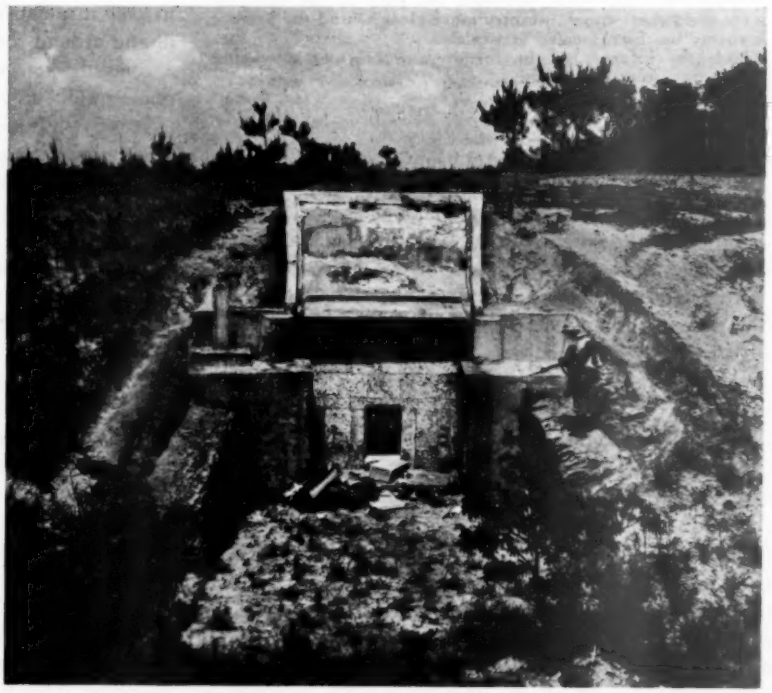
Defensive fire (D.F.) is, of course, nearly always needed at periods in the attack: not only have the artillery to get the infantry on to their objective, but they have to keep them there. And that is by no means easy against determined counterattacks.

During the assault on Wadi Akarit, for instance, Allied infantry broke right into the enemy position. The German counterattack came in about three hours later. D.F. "Bantam" was called for and answered by 16 rounds per gun from eight regiments. It had to be called for again and again, as well as other tasks to right and left. In spite of the cover thus afforded, the infantry under overwhelming pressure had to fall back.

Two other calls were then made—"Bantam South 400" and "Bantam South 800," apart from observed shooting by F.O.O's. These shoots protected the retiring infantry until they reached ground suitable to hold, when other D.F. calls sufficed to hold the enemy off.

The term "concentration" implies the placing of shells on the right spot in the required quantity. The difficulty lies in application; where numerous calls are coming in from enthusiastic F.O.O's, it is hard to gauge their relative importance so as to assign a suitable number of regiments to each task.

OKINAWA HOLE-INS



Since the days of fighting in the jungles of the southern Pacific islands, the Jap has been known to be mole-like in burrowing defenses. There hollow trees and stumps played a large part. On volcanic Iwo Jima the network of caves and tunnnels was well developed.

Okinawa has brought this "art" to its highest state to date. Some caves are more or less natural hollows in coral-like rock. Burial vaults, which are well scattered all over the island, lend themselves to defensive works; all must be examined carefully, whether or not they actually are inhabited by the living. Gun emplacements have been installed to blend into the terrain. Great quantities of concrete protect the crews and their weapons, as clearly shown here. This specimen appears to be a naval piece, from its pedestal-type mount.

PERIMETERS in PARAGRAPHS

(BASED UPON LATEST INFORMATION AVAILABLE AT DATE OF WRITING, AND SUBJECT TO CORRECTION AS MORE COMPLETE REPORTS ARE RECEIVED.)

By Col. Conrad H. Lanza

THE WEST GERMAN FRONT (19 Apr to 10 May 45)

British and American Armies under Gen. Dwight D. Eisenhower as supreme Commander, were engaged at the beginning of the period in exploiting the break-up of German armies which had been driven eastward away from the Rhine. Armies were grouped, and arranged in order from north to south, as follows:

21st Army Group (Field Marshal Sir Bernard L. Montgomery): Canadian First Army (Gen. H. D. G. Crerar), British Second Army (Gen. Sir Miles C. Dempsey).

12th Army Group (Gen. Omar N. Bradley): U. S. Ninth Army (Lt. Gen. William H. Simpson), U. S. First Army (Lt. Gen. Courtney H. Hodges), U. S. Third Army (Lt. Gen. George S. Patton, Jr.).

6th Army Group (Gen. Jacob L. Devers): U. S. Seventh Army (Lt. Gen. Alexander Patch), French First Army (Gen. Jean de Lattre de Tassigny).

The Allied offensive had been continuous since October, 1944. The latest major effort had started on 23 March, when the 21st Army Group forced a crossing of the Rhine. The other two Army Groups had previously established substantial bridgeheads on the east side of that river.

At the beginning of March the German forces on the west front numbered over two million men, and may have totalled nearly three millions. Through 18 April 1,130,000 prisoners had been taken. There is no available information as to the number of German killed, wounded, and otherwise missing; it is safe, however, to assume that these must have amounted to 300,000, making a total loss of 1,400,000 men within seven weeks.

Part of this German loss was caused by absence of motor transportation, due largely to a serious lack of gasoline and oil. This resulted in inability to head off the advance of the Allied armies, constantly spearheaded by armored divisions and closely followed by infantry divisions, generally mounted in motor vehicles. Allied armor which broke through the Rhine line and the West Wall at the end of March had gone deep into Germany, circled around the slow-moving German forces, successively isolated groups, and then reduced them by separate operations, at leisure.

The individual German quickly saw the futility of continuing to fight under the handicaps he suffered. He could not maneuver with any chance of success against motorized forces opposed to him. These cut his line of supply, and there was a deficiency of food. Allied air superiority was overwhelming; it kept its own forces completely oriented as to positions of the Germans, who were in the dark as to the location and movements of Allied troops.

In the first twenty days of March about 129,000 German prisoners were taken. Many were deserters, others surrendered voluntarily. In the last 11 days of March 198,000 Germans were taken—an average of 18,000 a day, as contrasted with about a third of that number during the first part of the month.

In the first 18 days of April 806,000 prisoners were brought in—an average of 42,500 a day. No army could stand such losses. The German leaders realized that their men would no longer fight. The uselessness of continuing the war was only too apparent.

The German High Command had counted on a division arising between the western Allies and Russia, which would cause one or the other to join Germany against its former friends. Strong propaganda was directed toward Russia, seeking to divert the allegiance of the Russian people from Stalin. This effort was a failure.

On 19 April the Allied Groups were engaged as follows:

21st Army Group: facing north on a line from the mouth of the Rhine to south of Bremen and Hamburg.

12th Army Group: facing east along the Elbe and Mulde Rivers, thence facing southeast along the Erz Mountains.

6th Army Group: facing southeast on a line from Bayreuth to Strasbourg.

Operations 19-30 April

21st Army Group

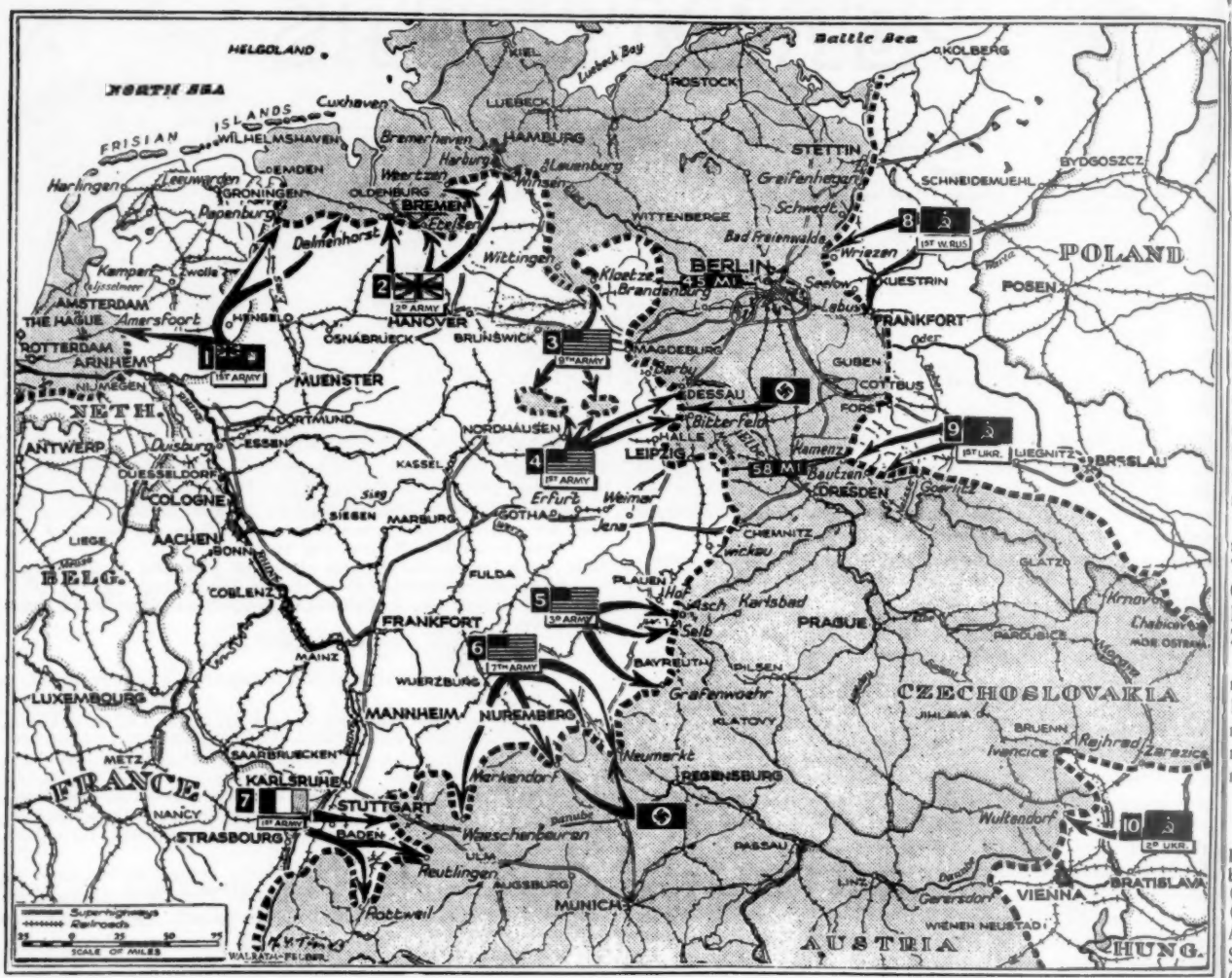
The line was

Waal (or Rhine) River from the sea to Wageningen (Allies)—Barneveld (?)—Harderwijk (G)—Zwolle (A)—seacoast (less islands offshore) to Groningen (A)—Winschoten (A)—Papenburg (?)—Friesoythe (Allied bridgehead across canal just to north)—Wildeshausen (A)—Delmenhorst (G)—Syke (A)—Verden (A)—Walsrode (A)—Neuenkirchen (G)—Scheverdingen (?)—Buchholz (G)—Amelinghausen (G)—Uelzen (?)—Luechow (G)—Wittenberge (G)—Elbe River to vicinity Tangermuende.

On the 19th the Canadian First Army arrived on the coast of Ijssel Sea from Harderwijk to Kampen. The Germans withdrew south of the Sea to a defensive line about 25 miles long extending to the Waal River, and the front of which was covered by extensive inundations. They prepared to hold the territory in rear, including the great ports of Rotterdam and Amsterdam. The right of the Canadian army and left of the British Second Army attacked between Friesoythe and Delmenhorst. The right made some advance but the left of this attack was held by German counterattacks against the bridgehead over the Coast Canal. The right of the British Army, with the 7th and 11th Armd Divs leading, attacked south of Hamburg. In this area the country is largely heath, open and uncultivated land, partly swampy, and suitable for maneuvering tracked vehicles. The British reached the line Hollenstedt—Buchholz—Rottorf—Laurenburg, all exclusive except the latter, where the British entered and prepared to cross to the north side of the Elbe.

On 20 April the Canadian left closed in in Holland to a line 2 miles east of Amersfoort. A very heavy battle took place between the Ems and Weser Rivers, where the Canadians and British met strong opposition. Near the Weser the attack crossed the Coast Canal and, taking Aschendorf in a stiff battle, approached Papenburg. The right entered Delmenhorst, started to clear that place. Another severe battle occurred between the Ems and Elbe Rivers in an attack toward the line Bremen—Hamburg. Greatest advance was by the Guards Armored Division, which by-passed defended centers and gained 20 miles to reach Zeven, near the center of the line. With this help, infantry following captured Hemelingen from the east. Other infantry reached the north side of Rotenburg. On the right armor broke through just south of Hamburg and reached Harburg (an extension of Hamburg on the south side of the Elbe), to start another street and house battle.

Next day enemy panzer and grenadier troops bitterly attacked the British in Harburg. Another German attack was delivered against troops consolidating the gains of the preceding day between Zeven



In heightening activity at the start of the period the Canadian First Army neared Amersfoort, crossed the Ems and closed on Papenburg, and was 6 miles from Oldenburg (1). The British cut the Bremen-Delmenhorst railway, drove toward Bremen through Etelsen, outflanked the big port in a dash to Weertzen, shelled Hamburg, and were 4 miles from it near Harburg (2). The American Ninth Army bottled up the Germans who had reached the Kloetze area and with the First Army reduced the two small pockets in the Harz Mountains (3). The First besieged Dessau and was heavily engaged north of Bitterfeld (4). The Third Army crossed the Czechoslovak border southeast of Hof, took Selb, and gained 16 miles to capture Grafenwoehr (5). The Seventh Army won Nuremberg, was counterattacked at Neumarkt, fought hard at Merkendorf, and applied part of a pincers to Stuttgart by plunging to Waeschenbeuren (6). The French drove to encircle Stuttgart from the west, raced through the Black Forest to Rottweil and seized Reutlingen (7). East of Berlin the Russians smashed forward between Bad Freienwalde and Lebus and the Germans said they were 7 miles from the capital (8); the Red Army also approached Kamenz and Bautzen and was 18 miles from Dresden (9). North of Vienna Soviet forces overran the town of Wultendorf (10).

and Rotenburg. This the Allies held, and their infantry closed in on the armored spearheads. West of Bremen, strenuous opposition held the Allies to small gains from the Coast Canal bridgehead. Papenburg was captured, however.

On the 22nd Germans attacked strongly north of the Allied Coast Canal bridgehead and got into a tank battle with the Canadian 4th Armd Div, which made some withdrawals. Farther west the Polish 1st Armd Div (with the Canadian First Army) was unable to break out from the Papenburg area, the day's advance being about half a mile. Between Bremen and Hamburg there was no major fighting but the British extended their line along the Elbe southeast of Lauenburg.

A new operation was started by the Canadian Army on the 23d. Its mission was to capture Rotterdam and Amsterdam by destroying the German force holding those cities. A direct attack across the inundated ground between the Ijssel Sea and the Waal was considered impracticable. The enemy's position, known as the Grebbe Line, had been planned and fortified by the Dutch. In 1940 they had intended to defend this line, but failed to inundate the foreground because of the rapidity of the German advance. This time the foreground was well flooded. The new attack was north over the Rhine, about 6 miles west of Tiel. An initial bridgehead was established.

On 24 April fighting started to expand the Canadian bridgehead. The Germans promptly closed around it; it became a very hot location. In north Holland the Germans withdrew the last of their troops west of the Ems River. East of the river the Polish 1st Armd Div was being held just north of Papenburg. British troops closed in around Bremen. East of that city a hot fight started around Zeven, which had been recaptured by the 15th Panzer and 172nd Inf Divs (German). The Guards Armd Div reentered Zeven.

On the 25th, a street and house battle at Zeven ended in favo

of the British Guards. At Bremen an artillery preparation of several hours was fired, after which the British 52nd Inf Div entered the south suburbs.

The 26th saw the British making considerable progress in the battle in Bremen. By evening a substantial part of the city had been occupied. The British 5th Inf Div, transferred from the Italian front, entered line near Bremen and aided in the attack. Against strong opposition the Guards Armd Div established a zone around Zeven. The Canadian bridgehead north of the Waal and west of Tiel was withdrawn, it having been found impracticable to deploy from the space occupied. Next day the capture of Bremen was almost completed, only a small German force remaining in the northeast sector. Elsewhere there was considerable fighting with practically no change, except that the Polish 1st Armd Div made progress down the Ems valley.

On 28 April this Polish division entered Leer after heavy fighting. There still was a hard battle in progress around Zeven, but attempts to advance from there toward Hamburg had after 8 days' continuous battle not succeeded. A new maneuver was started. A strong British force forced a crossing of the Elbe near Lauenburg. The enemy had not anticipated this; oppposition was minor.

German resistance to the new bridgehead increased next day from minor to moderate, but substantial number of troops crossed over. The attack toward Hamburg from the Zeven area was changed. The Guards Armd Div moved southwest to Tarmstedt, linking with British infantry moving north from Bremen. Other troops took over Zeven.

On 30 Apr a new advance was made from Tarmstedt and Zeven, reaching the line Bremerwoerde—Horneburg. On the left the Polish 1st Armd Div completed the street and house battle at Leer. On the right, the Lauenburg bridgehead was meeting strong opposition. A new crossing of the Elbe was commenced about 6 miles to the east near Boizenburg, and a small bridgehead established there.

12th Army Group

The line was

Elbe River from vicinity Tangermuende to Dessau (G), with Allied bridgehead opposite Barby—Mulde River to Bitterfeld (G)—Halle (?)—Leipzig (?)—Mulde River from Colditz (G) to Chemnitz (G)—Aue (G)—Asch (G)—Bayreuth (G).

At Halle and Leipzig street and house battles were in progress. South of Leipzig activity was limited to reconnaissance. A detached German force was in rear of the front within the Harz Mountains, and was under attack by forces advancing south from the vicinity of Wernigerode and north from the vicinity of Nordhausen.

On the 19th fighting occurred northeast of Brunswick. An enemy division (motorized, and reinforced with about 25 tanks) broke through the front, by-passed occupied places, and advanced 15 miles to the vicinity of Oebisfelde. Had the enemy been more numerous this movement might have been dangerous; but it ultimately failed. American troops of the Ninth Army immediately began to close around this hostile force from all directions. In the First Army at the Barby bridgehead both sides did some attacking, with neither gaining.

At Halle the 104th Inf Div completed occupying the city. At Leipzig the 2nd and 69th Inf Divs split the enemy into segments and occupied most of the city. Troops closed in on Chemnitz, and substantial progress was made by the 1st and 9th Divs which were operating against the enemy pocket in the Harz Mountains. The Third Army arrived within 5 miles of Bayreuth.

On 20 Apr the Ninth Army had the enemy division which had broken through fairly well sealed, although it was still fighting. The First Army completed the capture of Leipzig and, with the Third Army, made minor advances in a southeast direction toward the line Aue—Asch—Bayreuth. Further progress was made in the Harz Mountains.

Next day, headed by armor, troops entered Dessau and Bitterfeld and started to clear those towns. The Third Army advanced to the line Asch (inc)—Marktredwitz (exc) against moderate resistance. Greatest enemy resistance was opposite the First Army between Dessau and Leipzig, where the enemy was very active. Bitterfeld was cleared on the 22nd but Dessau was still partly held by the enemy. The last of the Germans in the Harz Mountains were overcome.

On the 23d the reduction of the enemy division which had broken through was completed by the Ninth Army. The First Army ended the battle in Dessau. The right of the Third Army swung around the northwest point of the Czecho-Slovak frontier, reaching Tirschenreuth.

The 12th Army Group was now about on the line which it appears had been agreed upon in February at Yalta, as the prospective boundary between American and Russian troops. No Russian troops were near the line, but our three armies were practically on it. In view of the agreement with Russia Supreme Headquarters ordered a discontinuation of the advance and the limiting of operations to security measures. At the same time a redistribution of troops was started with a view to permanent occupation of southwest Germany by American troops.

First contact with the Russian troops occurred on 27 Apr northeast of Leipzig, where a patrol of the 69th Inf Div met a Russian patrol near Torgau. On this date fighting occurred at the Barby bridgehead, which the Americans enlarged. Orders were issued forbidding accredited newspaper correspondents from crossing the agreed-upon boundary into Russian-assigned territory.

6th Army Group (including attached Third Army troops)

On 19 Apr the line was

Creusson, just south of Bayreuth (A)—Erlangen (A)—Nuernberg (?)—Ansbach (G)—Rothenburg (A)—Schwaebische Hall (G)—Bietigheim (A)—Pforzheim (A)—Calw (A)—Horb (A)—Freudenstadt (A)—Offenburg (A)—Rhine River to Switzerland.

At Nuernberg a severe street and house battle was under way. The 3d, 42nd, and 45th Inf Divs were attacking respectively from the north, west, and south, covered by the 12th and 14th Armd Divs which were southeast in the vicinity of Neumarkt. The center of Nuernberg is an old walled city; there the Germans made a strenuous resistance. Civilians aided their troops, attacking with picks and shovels; the fighting was desperate. The enemy's regular troops used machine guns and mortars.

Further west a moderate advance was made in the wooded hills southeast of Schwaebische Hall. West of Stuttgart, French troops failed to cross the Neckar River near Horb but reached the river east thereof at Tuebingen.

On 20 Apr the severe battle in Nuernberg ended with the nearly complete occupation of that city. The armored divisions to the southeast were forced out of Neumarkt. West of Ansbach, Feuchtwanger was taken. Attacks on Stuttgart were not making progress, but the gradual encirclement of the city was nearly accomplished. French troops from Tuebingen reached Esslingen, leaving the German garrison in Stuttgart only a narrow corridor by which they might withdraw. Other French troops made a big bound to the south against little resistance. On the Neckar River Rottweil was reached; on the Rhine, Breisach.

Next day mopping at Nuernberg was completed. West of Ansbach Crailsheim, which had been held once before, was retaken. The attack on Stuttgart continued. The French advance to the south gained 15 miles from Rottweil, reaching the Danube River.

After the capture of Nuernberg a redistribution of troops was made with a view to increasing the weight of the Allied attack on its center and right. The 3d Inf Div moved from Nuernberg to near Stuttgart; joining the 100th Inf Div on the 22nd it advanced south to east of that city. The enemy abandoned Stuttgart and fled. The 12th and 14th Armd Divs moved from southeast of Nuernberg to southwest of that city; the former division reached Dillingen on the Danube, with the 14th to the east. The 63d Inf Div at Crailsheim advanced south to Ellwangen, where it was 30 miles in rear of the armor at Dillingen. The 10th Armd Div advanced to a line half way between Stuttgart and Ulm. French troops crossed the Danube and reached the Swiss border south from Donaueschingen. This cut off a substantial number of enemy troops who were garrisoning that part of the West Wall facing the Rhine south of Breisach. The armored divisions which had been taken from the Nuernberg area were replaced by the 106th Cav Gp (mechanized) and by Third Army troops.

The left boundary of the Seventh Army appears to have been

shifted at this time to west of Nuernberg, the Third Army taking the area to the east.[1] This army started a column southward down the Naab River valley and to the west thereof. On 23 Apr the 11th Armd Div advanced through Weiden to Schwarzenfeld, with the 26th Inf Div following in support. Other troops moving southwest reoccupied Neumarkt. The left of the Seventh Army reached Weissenburg with the 14th Armd Div spearheading the 42nd and 45th Inf Divs. The 10th Armd Div reached Ehingen by an advance through Sigmaringen. It was followed by the 44th Inf Div, which came up on its left facing Ulm from the west. The 63d Inf Div also advanced south toward Ulm, while the 12th Armd Div crossed the Danube at Dillingen and advanced south, cutting the main road to Ulm from that direction and covering the operations around Ulm.

On 24 Apr the Third Army's 26th Inf Div reached Roding and faced east. The 90th Inf Div arrived on its left in the area about Vohenstrauss. The 11th Armd Div reached the high ground which formed the boundary between Bavaria, and Czecho-Slovakia and Austria. The left of the Seventh Army moved south, generally arriving on a line parallel to the Danube River and at the end of the day 7 miles north of it. The right of the army occupied Ulm, which was not defended. The 10th Armd Div, south of the Danube facing east, reached the Iller River. The French were at Lake Boden and were near completing the reduction of the West Wall pocket previously cut off.

Next day the Third Army met some opposition, but advanced up the Regen valley as far as Zwiesel. The 8th Air Force, in what was its last reported activity in the war, aided by a strong day attack on Pilsen. The left of the Seventh Army continued its advance toward the Danube and got across the Altmuehl River, but failed to reach the Danube except in small detachments. The right of the army endeavored to roll up the enemy's left by attacking east across the Iller River; strongly resisted, it made only small gains. The French First Army completed the capture of the West Wall along the Rhine and moved eastward north of the Swiss border to the west end of Lake Boden.

On the 26th the Third Army's 26th Inf Div turned southwest and reached the Danube near Straubing. The 90th Inf Div protected this movement from possible enemy advances from the Pilsen area, but nothing developed. The 11th Armd Div covered toward Passau, holding a line about 10 to 12 miles north and northwest of that town. The 71st and 65th Inf Divs, finding Regensburg defended, by-passed that place to the east and west and crossing the Danube came up to Regensburg from the south.

The 14th Armd Div, followed by the 99th Inf Div, arrived north of Ingolstadt and prepared to attack that river crossing. The 42nd Inf Div by-passed Donauwoerth and crossed the Danube to the east. The 3d Inf Div (spearheaded by the 101st Cav Gp (mechanized)) by-passed to the west and marched toward Augsburg. Near Guenzburg the 63d Inf Div was attacked and did not make much of an advance. The 10th Armd Div with the 44th Inf Div closed in on Ulm from the south and captured New Ulm. The French Army advanced to and occupied Konstance.

On 27 Apr the 26th Inf Div advanced down the Danube to Deggendorf covered by the 11th Armd Div, which arrived on the Austrian frontier. The 65th and 71st Inf Divs attacked Regensburg from east and west and captured it. The 14th Armd and 99th Inf Divs by-passed Ingolstadt to the west and crossed to the south side of the Danube. The 86th Inf Div, following, moved right into Ingolstadt, which was not seriously defended. The 12th Armd Div (which had been in the Dillingen area) moved to southwest of Augsburg, north of the 44th Inf Div at Bad Woerishofen. The 3d Inf Div closed on Augsburg from the north and the 4th from the west. The movements of American troops at this time were most active against scattered and desultory opposition. Greatest concentration was against Augsburg.

On the 28th the 13th Armd Div arrived near Straubing, having been transferred from the Ninth Army. It started southeast toward Munich. With the same objective the 65th and 71st Inf Divs moved south from the Regensburg area, and the 86th from near Ingolstadt. The 26th Inf Div covered this movement by driving enemy troops near Deggendorf back toward Austria. The advance on Munich met some opposition but it was not strong enough to do more than delay the Americans. On the right of the Seventh Army the 10th Armd Div moved south to Fuessen, closely followed by the 44th and 103d Inf Divs. The 3d Inf Div captured Augsburg after a short fight, and the troops in the vicinity were aligned generally along the Paar and Lech Rivers facing Munich. German forces were disintegrating, 31,000 surrendering individually or in small units.

Against only nominal resistance the 12th Armd Div, followed by the 42d Inf Div, advanced rapidly on the 29th, and at 1600 hours arrived at Munich. The 3d Inf Div arrived later. The 4th Inf Div approached from the northwest. The enemy withdrew to across the Isar River.

The advance of the 13th Armd Div, which was being followed by the 99th Inf Div coming from toward Ingolstadt, arrived north of Landshut. The 11th Armd and 26th and 90th Inf Divs remained north of the Danube, facing the frontier of Austria and Czecho-Slovakia. The front was rearranged by facing the advance to the line of the Isar River, which river was approached northeast of Munich. South of Munich the front reached a north-south line through Lake Ammer. The 10th Armd Div moved south from Fuessen; meeting very strong resistance it made only a 3-mile gain. Nearly 40,000 more prisoners were taken this day throughout the Bavarian theater of operations.

On 30 Apr the Isar River was reached northeast of Munich. In that city a street and house battle was under way to clear the enemy out of the sector east of the Isar. Southwest of Munich the 10th Armd Div was moved to near Garmisch-Partenkirchen. The 44th and 103d Inf Divs were in line to its right and left, the 44th being south of Fuessen and the 103d near Mittenwald. These three divisions facing south found strong resistance on the mountain line in front of them. To the west, the French First Army met the same line of defense between Bregenz on Lake Boden and Oberstdorf to the east.

* * * * *

During the period 19 to 30 Apr all Army Groups took 563,500 prisoners, an average of nearly 47,000 a day. In all April 1,370,202 German prisoners were taken.

For the entire month of April, American casualties were only 34,598 killed, wounded, and missing. For a comparatively small cost,[2] the enemy certainly lost over a million and a half and probably close to two millions.

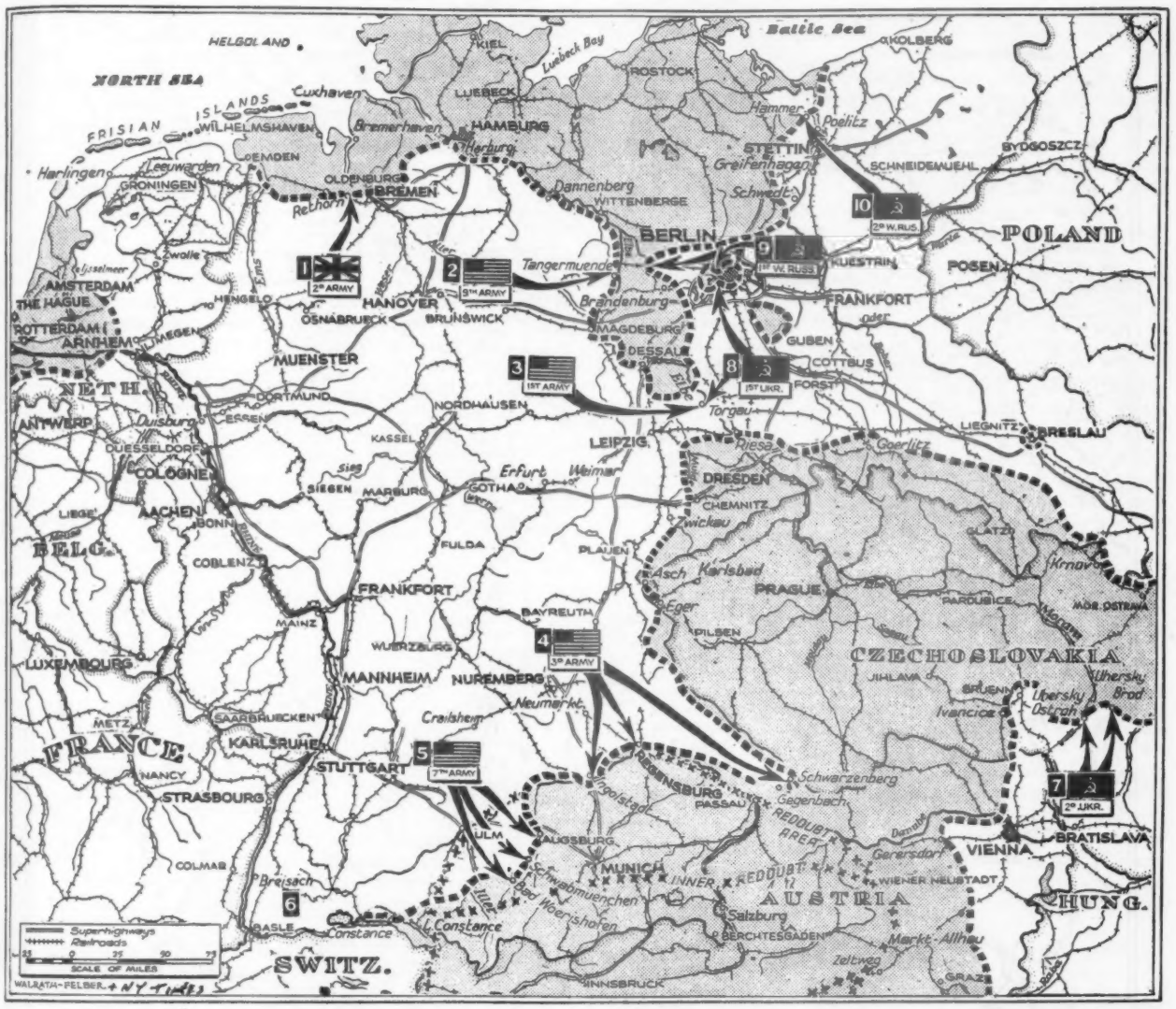
Early German Attempts to Surrender

On 16 Apr the German High Command was fully aware of the hopelessness of the military situation. Some kind of representation appears to have been made at Berlin GHQ to Hitler, who as Fuehrer was personally in command. The reason this day was selected was apparently because the main Russian attack on Berlin was launched that morning. Hitler declined to consider surrender. In view of the probable imminent success of the Russians and the then position of the western Allies, it seemed that Germany would be cut in two within a few days. To cover this situation, Hitler issued a General Order organizing a North and South Defense Area, each with a separate headquarters. He designated Heinrich Himmler, well known Nazi, to command the South Defense Area.

It appearing more and more improbable that German organized resistance could continue much longer, Hitler on 19 Apr issued another General Order admitting that the military situation was bad. He directed cessation of attacks against strong points, but rather that they be made against weak ones. Attacks were to be made against flanks and rear of the Allied forces and every endeavor made to cause them to disperse their troops over a large extent of occupied territory, where it would be possible to attack and destroy in detail. He particularly recommended following the example of the Russians, whose Partisans during 1942-44 caused the Germans a great deal of trouble. Although the word guerrilla is not mentioned, guerrilla warfare is apparently what Hitler had in mind.

[1] It is presumed, but not known, that this part of the Third Army operated under orders of the 6th Army Group, with which its movements were necessarily closely connected.—C. H. L.

[2] Losses of our British ally have not yet been reported.—C. H. L.



On the day Germany was bisected British troops (1) captured Rethorn in the Bremen area. To the southeast the United States Ninth Army (2) crossed the Elbe at Tangermuende. United States First Army troops (3) joined the Russians at Torgau to split Germany in two. The American Third Army (4) crossed into Austria and captured Gegenbach and Schwarzenberg. It completed seizure of Regensburg and Ingolstadt. Seventh Army forces (5), about to take Augsburg, crossed the Wertach River to take Schwabmuenchen. The French First Army eliminated the Black Forest pocket (6) by penetrating to the center and fanning out. Red Army men of the Second Ukrainian Army (7) took Uhersky Ostroh and Uhersky Brod. The First Ukrainian Army (8), in addition to joining with the Americans, drove deeper into Berlin from the south. The First White Russian Army (9) drove toward another meeting with the Allies and struck farther into Berlin from the north Other Russian forces (10) pushed along the Stettin Bay through Poelitz and Hammer.

Notwithstanding the order to go south and assume command of the South Defense Area, Himmler failed to do so. He went north and is next reported as at Flensburg, on the Denmark border. From this point he applied to Sweden to send an emissary to whom he could communicate a surrender proposal. The Swedish Government sent Count Folke Bernadotte, a member of the royal family, who had an interview with Himmler during the night 23/24 Apr. Himmler stated that Hitler was very ill and, if not already dead, would certainly die within the next two days.[8] Himmler was second in command and would be Fuehrer upon Hitler's death. He was therefore in a position to carry out any arrangements agreed upon. He desired an interview with Gen. Eisenhower with a view of surrendering all German forces in the west, including Holland, Denmark, and Norway, but proposed to go on with the war against Russia, to whom his proposition was not directed.

Count Bernadotte returned to Stockholm, and through the usual diplomatic channels the substance of his conversations with Himmler were communicated to the American and British ministers. The American State Department received this information about noon on the 25th.

At a meeting of the Joint Chiefs of Staffs Board attended by the President, who communicated with the British Prime Minister, a message was sent to Marshal Stalin advising of Himmler's offer, and proposing to reject it and inform Himmler that unconditional surrender was the only acceptable offer. At noon on the 26th a reply was received from Moscow approving the proposed reply, which was thereupon despatched to Sweden within an hour—which would be 1900 hours Swedish time—too late for action that day.

Count Bernadotte proceeded to Flensburg on 27 Apr and de-

[8] "Two days," considering the hour at which the statement was made, would mean 24 or 25 April as the day on which Hitler's death could be expected. C. H. L.

As Germany's end approached, driving toward Luebeck the British entered Muehlenrade (1); to the southeast they linked their Elbe bridgehead with that of the American Ninth Army. Russian troops pushing from the east took Stralsund, Gnoien, and Waren (2). In the Berlin area (3) they not only seized Brandenburg but also won new points in the center of the capital. The American Third Army (4) speared southeastward to enter Lembach, capture Griesbach and Braunau, Hitler's birthplace, and reach Dorfen. The Seventh Army (5) advanced to Scharnitz and won Stanzach, 40 miles east of French forces at Bregenz. The French in northwestern Italy (6) advanced east of Briancon and pushed forward on a line from Borgo San Dalmazzo to Ventimiglia, on the coast. Moving toward them were American units that had raced beyond Savona (7). Other American forces pressed northward toward Trent and reached Rivalta (8). The British (9) drove to Pont nell 'Alpi, entered Udine, and joined Yugoslavs at Monfalcone.

livered the Allied reply. It appears probable that in addition to so much of the Allied reply as has been released, there were other stipulations. Subsequent events indicate that Himmler was advised that no dealings would be had either with him or with his master Hitler, both of whom had been classified as "Criminals, war, first class."

In view of this situation Himmler withdrew. He remained at liberty in disguise until captured by the British about 20 May. Although closely watched, he succeeded in committing suicide (poison) on 23 May. It remained for Germany to remove Hitler and replace him with some one with whom the Allies would deal. From Himmler's statment apparently some arrangement for the removal of Hitler had been initiated, which Himmler believed would be carried out not later than 25 Apr.

For the removal of the German Fuehrer there was a precedent. In 1925 President Ebert was at the head of the German Government. He was a Socialist and the High Command desired to replace him with a Conservative—Marshal von Hindenburg. Ebert was counselled to apply for retirement on account of illness in line of duty, which it was arranged would be approved. He declined to do so, stating that he had been elected for a 7-year term and still had over a year to serve. Ebert was subject to attacks of indigestion. He was a heavy eater. Following an official dinner, at which the American ambassador was present, Ebert had an attack. This was the opportunity the conspirators were waiting for. Ebert was rushed to the hospital, where a surgeon, previously coached, immediately "operated." Whether Ebert died on the operating table (first German official report) or two days later (final German official report) has not been ascertained.

In the present case, according to statements of Germans who were war prisoners, Hitler was advised to withdraw from Berlin, where he had assumed command. Like Ebert, Hitler refused to go. One of our prisoners, who was a medical officer, stated that he had made a physical examination of Hitler on 15 Feb last and that at that time he was in good shape. Blood pressure was low, and his admittedly abstemious habits precluded a possibility of a death at this time from cerebral hemorrhage, as had been claimed by Himmler's chief of staff.

On 1 May Count Bernadotte returned to Stockholm. At 2000 hours the American minister was advised that Himmler had been given the American reply but that thereafter nothing had happened.

At 2145 hours on the same day the Hamburg radio announced that Hitler had fallen while fighting in Berlin. It was further announced that on the day before he had appointed Grand Admiral Karl von Doenitz as his successor. Admiral von Doenitz himself took the microphone and announced that he had assumed command as Fuehrer. No details as to the alleged death of Hitler have become public. Neither have witnesses been found who saw his death, nor have any papers appointing von Doenitz been located.

It seems probable that Hitler is dead, but the method and date of death can not be accepted without further evidence. Taking into consideration the Ebert precedent the German High Command may have engineered Hitler's death. It may have taken place as early as 24 Apr, as Himmler evidently expected it might. But it may not have occurred until 1 May. There is a lack of information as to what happened at German GHQ between those dates. Whatever it was, the first German attempt to surrender had ended.

Final Operations

21st Army Group, 1-5 May

On 1 May the Canadian Army attacked north from the line Leer—Oldenburg. Strong resistance was encountered. The Polish Armd Div near Leer, the Canadian 4th Armd Div near Zwischenahn, and the Canadian 2nd Inf Div near Oldenburg were held to small gains. Between Bremen and Hamburg the British 43d Inf Div advanced to the vicinity of Scharmbeck while the Guards Armd Div, finding no enemy, reached the line Stade—Horneburg. Across the Elbe the British 11th Armd Div broke out from the bridgehead and finding only minor enemy forces reached Moelln. American armor arrived, entered line on the right of the British, and advanced from Boizenburg on the Elbe to beyond the line Wittenburg—Hagenow.

Next day the new German Fuehrer ordered that Kiel and Flensburg be declared open and be undefended. It seems that he also ordered no defense at all in this direction. The British 11th Armd Div entered Luebeck without being resisted; the British 6th Inf Div similarly occupied Wismar. Other troops occupied Schwerin and Ludwigslust. The Allied Airborne Army came into line, the U. S. 82nd and the British 6th Airborne Divs arriving at Doemitz and Wittenberge, respectively, without opposition. At the latter place Russian patrols were met. The 21st Army Group was now on the line agreed to at Yalta as the boundary between Russian and western Allied forces. The Germans had not resisted. A detachment of 2,000 men at Doemitz surrendered as soon as the Americans arrived. All belonged to the line of supply, and presumably were rear elements of combat troops fighting the Russians to the east.

North of Bremen the British 52nd and 40th Inf Divs formed line westward between Luebeck and the mouth of the Elbe. West of Bremen strong German resistance continued. The Polish and the Canadian 4th Armd Divs had a hard battle advancing toward Wilhelmshaven and made only small gains.

On 3 May Admiral von Doenitz reopened the surrender negotiations which had been discontinued upon the disappearance of Himmler. An emissary (Admiral von Friedeburg) to the 21st Army Group was duly received by Field Marshal Montgomery. He had a twofold mission, one a request to proceed to Supreme Headquarters and negotiate a surrender of all German forces with General Eisenhower, the other a request to surrender the forces confronting the 21st Army Group.

Field Marshal Montgomery reported the first request to Supreme Headquarters for instructions. None came that day. Pending action on that a surrender of German forces confronting the 21st Army Group was arranged for and accepted to be effective as of 0800 hours, 5 May. Terms were

1. **All German forces in the North Defense Area were surrendered, including naval forces, the islands off Holland and northwest Germany, and Denmark.**
2. **The German command was to carry out all orders of the Allies.**

During the 3d there was little fighting. The Germans surrendered Oldenburg and Hamburg. The British Guards Armd Div reached Neumuenster without a fight. British and American troops facing east on the line south from Luebeck took 50,000 prisoners belonging to the Second Panzer Army, who were fleeing from the Russian front.

On the 4th the only fighting on land reported was that of patrols near the Kiel Canal. Very strong Allied air attacks were made against what appeared to be a large movement of Germans by water toward south Norway.

On 5 May fighting ceased as provided for by the surrender.

12th Army Group, 1-8 May

As this Army Group had already arrived on the agreed boundary between Allies and Russia there were no maneuvers. On 3 and 4 May the German Ninth and Twelfth Armies, withdrawing from Berlin, entered the American lines between Stendal and Madgeburg and surrendered. Their numbers have not been separately reported.

6th Army Group (including attached Third Army troops), 1-8 May

Against very light resistance the 11th Armd Div advanced down the Danube on 1 May toward Linz, with the 26th Inf Div following on its left rear. Between Deggendorf and Munich infantry divisions crossed the Isar River and advanced toward the Inn River, spearheaded by armor which reached that river astride Braunau.

South of Munich the Isar River was reached. South of Mittenwald the 103d Inf Div against considerable resistance reached Sharnitz, while the 44th Inf Div advanced from Fuessen up the Lech valley.

On 2 May the 26th Inf Div cleared out an enemy garrison which had been holding Passau. Troops generally arrived along the Inn River between Passau and Rosenheim without meeting serious resistance. The 103d and 44th Inf Divs met determined opposition in the narrow mountain valleys through which they attacked south into the Tyrol.

On the 3d troops commenced to cross the Inn, the 3d Inf Div reaching Lake Chiem spearheaded by the 12th Armd Div. The 42nd and 86th Inf Divs were on its left to the northeast. The 11th Armd Div remained opposite Linz, where it had been well in advance of the following infantry divisions. The 103d and 44th Inf Divs had

hard fighting, complicated by snow which in places was 4 feet deep. The 103d nearly reached Innsbruck.

Next day German resistance practically ceased. Almost 50,000 men surrendered between Salzburg and Innsbruck. The latter town was entered by the 103d Inf Div who sent out combat teams south toward Italy and northeast down the Inn River. At Vitipeno contact was made with Fifth Army patrols coming north toward the Brenner Pass. Resistance continued at Linz and to the north thereof. The Ager River was reached between Salzburg and Linz.

On 5 May German Army Group G, consisting of the First and Nineteenth Armies, surrendered to the 6th Army Group effective as of 1200 hours, 6 May. Fighting was stopped, however, as soon as it was practicable to communicate instructions to that effect to troops of both sides. The surrendered front extended from Switzerland to Salzburg, inclusive. The 11th Armd Div attacked and captured Linz with the 26th Inf Div in close support, and the advance was then continued to the Enns River.

On the 6th the left of the Army Group moved forward without opposition to occupy the line Pilsen (inc)—Strakonitz (exc)—Krummau (inc)—Linz—Enns River. Some redistribution of troops occurred on the 7th and 8th, but no further operations. At the end of 8 May the line reached was approximately as indicated for the 6th.

The Final German Surrender

When on 3 May Admiral von Friedeburg asked Gen. Montgomery for an interview with Gen. Eisenhower, the latter did not at once reply. He did not do so until the morning of the 5th, presumably due to awaiting instructions from higher authority. The German admiral was authorized to proceed to Supreme Headquarters at Reims, and duly arrived there at about 1700 hours on 5 May. To him there were communicated the Allied terms of unconditional surrender of all forces, who were to stand fast wherever they were.

Von Friedeburg forwarded the substance of the terms by code over Allied lines to the British Second Army and thence by courier to Admiral von Doenitz. In reply Col. Gen. Gustav Jodl, German Chief of Staff, arrived by air about 1700 hours 6 May. He had with him a written authority to sign a surrender. Long discussions followed. Their subject matter has not been released. The discussion ended about 0230 hours 7 May. Thereupon *An Act of Military Surrender* was signed at 0241 hours. It provided for the unconditional surrender to the Allied Supreme Commander, and simultaneously to the Soviet High Command, of all German forces on land, sea, and air as of 2301 hours, 8 May. It did not mention the state of Germany.

A separate document was signed (presumably at the request of Russia) providing for a formal ratification at a different place at which the German C-in-Cs of their Army, Navy, and Air Forces would be present. This document does not mention the place or date of the proposed ratification meeting. From what afterward occurred, it seems that Russia demanded that the surrender be made to her Commander-in-Chief at Berlin. Orders were issued for secrecy as to the surrender signed at Reims. Due to the unauthorized action of a press correspondent the news was made public early on 7 May, thereby causing some misunderstandings. It was also broadcast by the German radio.

The ratification meeting was arranged for Berlin, during the afternoon of 8 May, at which time the German representatives duty arrived. There also arrived British and American representatives from Supreme Headquarters (Marshal Tedder and Gen. Spaatz). Marshal Zhukov represented Russia. No suitable place being available in Berlin, the meeting was held at Karlshorst (east of Berlin). Marshal Tedder brought a copy of the Reims surrender with him. The Russians objected to part of it, and there was a long discussion as to changing it. Finally a new *Act of Surrender*, the text of which has not been released, was drawn. It took until midnight to arrange this. The Germans do not appear to have been consulted but were called when everything was ready. Then amidst a proper stage setting, before film recorders and photographers, they signed. Then, and not until then, Russia announced in her own country the German surrender. No mention was made of the surrender at Reims.

NOTES

1. The German surrender relates only to military forces. There has been no surrender of Germany, in legal form.

2. Main effort of the German High Command seems to have been to bring as many men as possible into the lines of the western Allies, rather than into Russian lines. Reports as to prisoners taken by the western Allies have been released only to include 5 May. These are:

		includes
May 1	66,851	
2	85,283	Second Panzer Army troops in Mecklenburg, and a Hungarian Division in Austria.
3	412,943	parts of Ninth and Twelfth German Armies from Berlin.
4	176,000	balance of Ninth and Twelfth Armies.
5	398,630	Army Group G (First and Nineteenth Armies) in Austria.
	1,139,707	
Add to above		
Total for March	325,101	
April	1,370,202	
	2,835,010	all prisoners taken on western front since 1 March to 5 May (inc).

Probably 800,000 of the above number were troops from the Russian front. This would leave 2,000,000 as taken from forces opposing the western Allies. Number of Germans killed, wounded, and missing is not known; it must have been around 500,000 or more. The total German strength on the west at the commencement of March was therefore about 2½ million men. The Allied strength has not been released, except that it has been stated that over 3,000,000 troops were transported by sea to this front. This does not include air troops based in England, whereas the German figures do include their airmen. Neither do the Allied figures include French troops, who numbered about 250,000.

Besides a numerical superiority, the Allies had an enormous preponderance of air forces and of transportation, and were superbly equipped. The Germans were weak in the air, and their motor transportation had all but disappeared or was non-operative.

3. There appears to have been no coordination between the campaigns on the east and west German fronts. On each front, the campaigns were independent.

When American troops arrived on the Elbe River on 18 Apr they could have gone on toward Berlin. A bridgehead was secured south of Madgeburg and the troops were prepared to go forward. They were stopped by orders. The Yalta agreement had established zones within which the various Allies were to confine their operations. Cooperation was not desired between east and west outside of the areas formally assigned as spheres of influence. The bridgehead was withdrawn.

THE EAST GERMAN FRONT (19 Apr to 12 May 45)

The major Russian offensive during the period was directed against Berlin and vicinity. Secondary campaigns occurred to the south toward Czecho-Slovakia and Austrian areas, and in the north along the Baltic coast.

The Berlin Campaign

The 1st White Russia Army Group on the north and the 1st Ukraine Army Group on the south had launched a general attack from the line of the Oder and Neisse Rivers on 16 Apr. By morning of the 19th this offensive had reached the line

Oder River from Stettin south to Zehden—Wriezen (German)—Seelow (Russian)—Frankfurt (G)—Oder and Neisse Rivers to Guben—boundary between 1st White Russian and 1st Ukraine Army Groups—Forst (R)—Muskau (R)—Weisswasser (R)—Rothenburg (R)—Goerlitz (G).

The Germans held Breslau as a roadblock in rear of the Russian front. It was under close siege. The Russian plan was for the 1st White Russia to attack the east front of Berlin while enveloping it to the north. The 1st Ukraine, while holding toward Dresden, was to make its main effort against the south side of Berlin. The terrain was generally flat and suitable for operation of motor vehicles, as the spring rains were about over. Much of the country is sandy and

dries out quickly. The Russians had large armored forces. They seem to have lost an unusually large number of vehicles, but replaced them daily. The Germans were deficient in motor transportation. Strengths of the two sides are not yet known.

On the 19th the attack on Berlin in very heavy fighting advanced closer to Wriezen (exc) and Seelow (exc), forming a rather sharp salient caused by a failure to capture Frankfurt. The south offensive advanced to Spremberg (G)—Weisswasser (R)—Bautzen (G)—Goerlitz (G). The 1st Ukraine armor having had a gap blown for it to pass through the German lines south of Cottbus, went forward to Calau. According to German reports this force consisted of 16 armored divisions.

This strong armored force advanced 40 miles on the 20th, reaching the vicinity of Jueterbog. Spremberg was taken. The holding attack toward Dresden reached to near Kamenz. Attacks on Bautzen and some other places failed. Same at Frankfurt. The 1st White Russia, while attacking heavily all along the front, made its main effort on the north side and advanced its right through Freienwalde and Wriezen to Bernau, threatening Berlin from the north.

On 21 Apr a German counteroffensive was launched against the left of the 1st Ukraine north of the mountains along the Czecho-Slovakia border. Despite some setbacks, the Russians entered Bautzen and cleared a supply route for the armor which reached the south border of Berlin. The 1st White Russia fought its way to northeast of Berlin, capturing the line Bernau—Alt Landsberg—Strausberg. Attacks on Frankfurt again failed. The Russian attack was extended to the north, the 2nd White Russia Army Group attacking westward from bridgeheads between Stettin and Zehden.

Next day the Russians fiercely attacked Berlin from northeast and south. They reached the suburbs, where a savage street and house battle started. The 2nd White Russia to the north reached the Havel River (18 miles west of the Oder) with some elements.

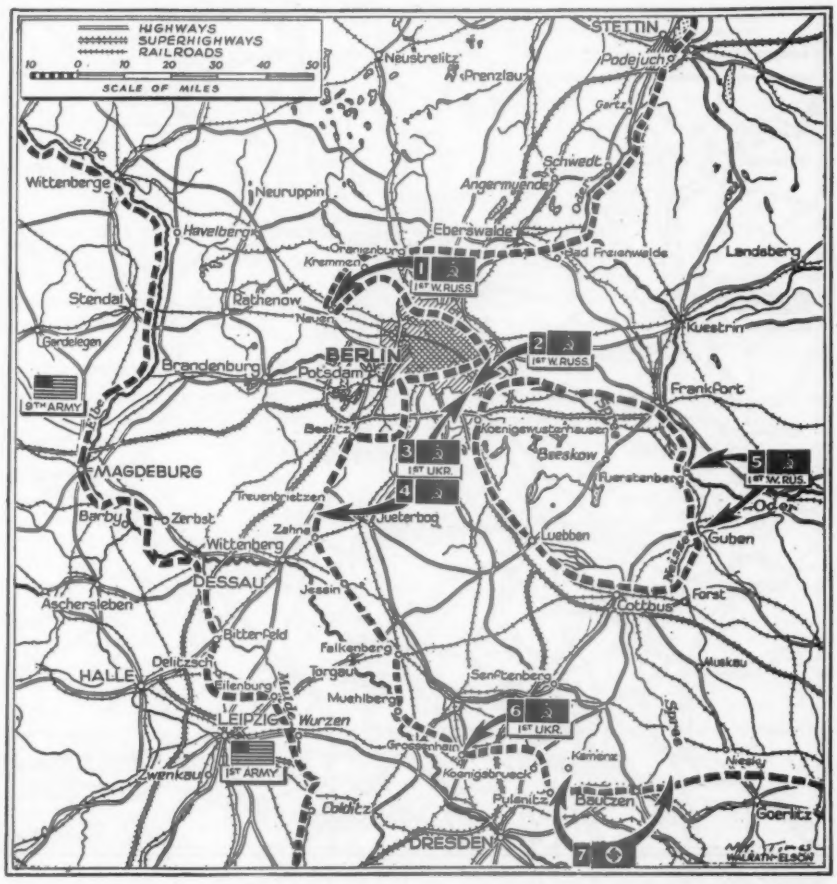
On the 23d the 1st White Russia, while continuing its strong attack into Berlin, extended its lines on the north to include Orianienburg. Now the 1st Ukraine had brought forward its infantry divisions in rear of the armor, still fighting in south Berlin. These faced west from Jueterbog southward, and reached the Elster River, with elements on the Elbe near Meissen. The German counteroffensive made some progress, reaching the line Kamenz—Bautzen—Goerlitz (all inc). Had this counteroffensive been in sufficient force to break through to the north it might have had a decisive effect, as strategically it was correctly directed. It failed to break through; as its gains were purely local, it did not affect the main result around Berlin. On this day Frankfurt fell, clearing Russian lines of supply.

Now the 1st White Russia extended its left to the south and on 24 Apr linked with the right of the 1st Ukraine. The right of the army was extended northwest of Berlin to Kremmen. The German counteroffensive on the south made a further slight advance.

On 25 Apr the fierce battle continued night and day within Berlin, with the Russians making slow and sure advances. North of the city the 1st White Russia advanced from Oranienburg to Fehrbellin but failed to take the latter place. The 1st Ukraine on the south closed on Potsdam, captured Brandenburg, and was repulsed at Rathenow. Small forces reached the Elbe and contacted American troops across that river. The 2nd White Russia restarted its offensive south of Stettin. Next day the Russians attacked everywhere but made few gains against the desperate German resistance.

On 27 Apr German GHQ was convinced that the western Allies were not going to advance across the Elbe, but would stand fast regardless of events. They thereupon ordered their Twelfth Army on the Elbe to face east and advance to the aid of Berlin. At the same time the German Ninth Army (which had concentrated southeast of Berlin, composed of assembled units which the Russian 1st Ukraine Army Group had by-passed) was ordered to move west through Buchholz. Reserves reached Berlin, some being dropped by air. What remained of the German air force concentrated on attacking Russian armor. In spite of these measures the Russians closed their lines around Berlin. They also attacked the German Ninth Army southeast of Berlin.

On 28 Apr the German Twelfth Army, withdrawn from the front of the U. S. Ninth and First Armies, attacking eastward, reached the line Werder (inc)—Beelitz (inc)—Treuenbrietsen (exc). The German Ninth Army southeast of Berlin advanced westward but found the going hard and had heavy losses. The German counteroffensive to the south extended its left to reach the line Meissen—Koenigsbruck—Kamenz—Bautzen (all inc), but was still too weak to break through. In the north the 2nd White Russia, attacking west, reached the line Anklam—Pasewalk—Templin (all inc, except Anklam).



In attacking Berlin the Russians used multiple envelopments. On the northwestern fringe of the capital Soviet forces advanced through Kremmen to Nauen (1). Inside the city the First White Russian Army (2) joined the First Ukrainian (3) in the southeastern section. The Germans reported a Russian advance from Jueterbog toward Wittenberg (4). To the east the Red Army seized Fuerstenberg and Guben (5) and near Dresden occupied Grossenhain (6). The enemy claimed the recapture of Pulsnitz and Kamenz and a penetration of the Russian lines to the east of Bautzen (7).

On the 29th the German relief attack toward west Berlin was stopped through strong Russian attacks on both its flanks. The Germans southeast of Berlin made slow progress westward but continued to lose heavily. Berlin was falling slowly, the Germans using troops, and all able bodied men and boys. The 2nd White Russia, fighting the Second Panzer Army, reached the line Anklam (inc)—Neubrandenburg (inc)—Neustrelitz (exc).

On the 30th the German 12th Army was holding on the line Werder—Beelitz—Niemegk (all inc) and was joined by some troops which broke out of Berlin. The German Ninth Army southeast of Berlin was now in the vicinity of Wendisch Buchholz, being attacked from all sides but still moving west. The 2nd White Russia reached the line Greifswald—Neubrandenburg—Neustrelitz—Fuerstenberg (all inc).

May Day the Germans from southeast of Berlin made a gain of almost 20 miles to reach the Luckenwalde area, only 20 miles from their comrades southwest of Berlin. The Second Panzer Army in the north withdrew to the line Warnow River—Lake Mueritz—Neuruppin. News of the alleged death of Hitler encouraged the Russians, who were still being savagely resisted within the now entirely surrounded Berlin. After announcing the death of Hitler German GHQ in Berlin closed its CP and disbanded. Some troops appear to have gotten away; the rest prepared to surrender.

On 2 May the German Ninth Army from southeast of Berlin, or what remained of them, joined their Twelfth Army. The two armies thereupon abandoned the war. That night they commenced to withdraw from the Werder—Beelitz—Niemegk line, and on the following two days (3 and 4 May) surrendered to the Ninth and First U. S. Armies, standing fast along the Elbe. About 500,000 Germans appear to have thus escaped the Russians. On the 2nd, after holding long enough to enable the Ninth Army to join the Twelfth, Berlin surrendered at 1500 hours. The garrison numbered about 135,000 men. The 2nd White Russia reached the Warnow River and captured Rostock.

According to Russian accounts, on the 3d the German Second Panzer Army avoided combat and surrendered 220,000 men to the advancing Russians who reached a line about 12 miles west of the Warnow River. The German account is that the majority of their troops gained the line Wismar—Lake Schweringer—Elde Canal and River to the Elbe, behind which British and American troops were waiting. Allied accounts show that 85,000 Germans surrendered on this day on all fronts. The Russians reached the western Allied line on 5 May, ending this campaign.

The South Russian Campaign

On 19 Apr the line was **Goerlitz (G)—Lauban (G)—Katzbach Mountains—Eulen Mountains—Neisse River to Neisse (G)—Neustadt (G)—Leobschuetz (G)—Ratibor (G)—Bogumin (G)—Skoczow (G)—Zywiec (?)—Zilina (G)—Vetrene hole Mountains—Trencin (G)—Veseli (R)—Auspitz (R)—Eibenschuetz (R)—Neusiedl (G)—Kornenburg (G)—Danube River—Traisen River—Semmering (G)—Friedberg (R)—Fuerstenfeld (?)—Fehring (G)—Radkersburg (G)—Mura River—Drava River—Slatina (G)—Brod (G)—Drina River.**

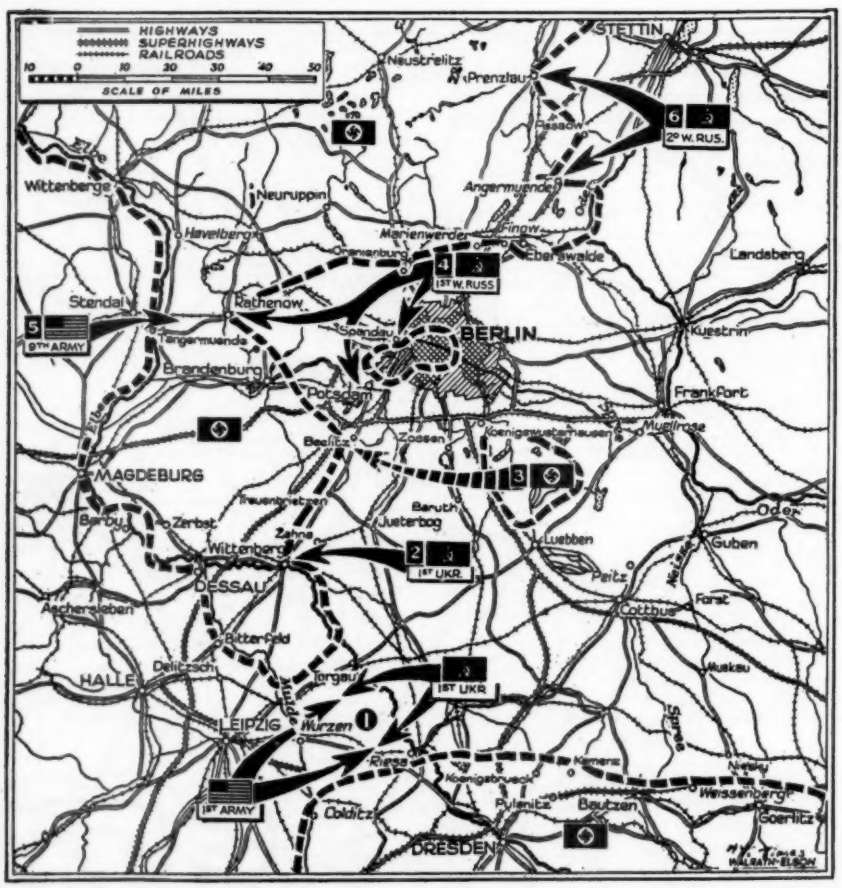
Moderate activity was present over the entire front, with minor German attacks near Semmering and Russian attacks elsewhere. Three Russian Army Groups were engaged: the 4th, 2nd, and 3d Ukraine in that order from north to south.

The succession of daily attacks brought the 4th Ukraine into Troppau on 23 Apr. Next day a strong attack was started by the 2nd Ukraine against Bruenn, with main effort through Austerlitz, which was taken on the 28th. On the 30th the 4th Ukraine captured Moravska Ostrava by an attack from Troppau. The Germans thereupon evacuated Bogumin and Skoczow, falling back to the vicinity of Friedberg.

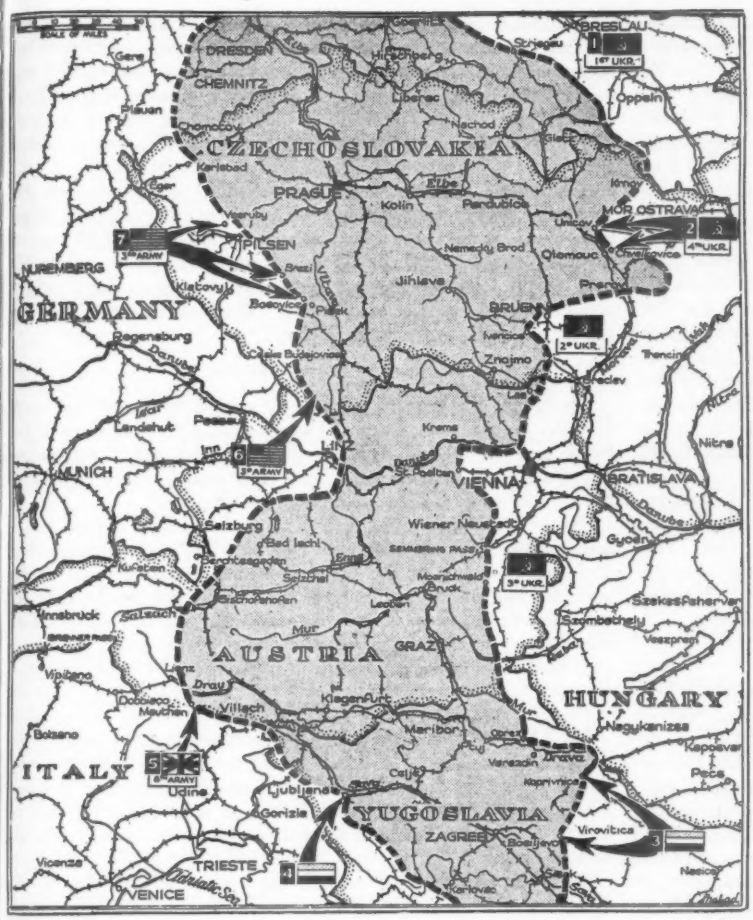
On 2 May the 2nd Ukraine's attack against Bruenn reached Wischau. Very strong resistance was being encountered.

On 1 or 2 May, in view of the general situation, the German High Command ordered a general withdrawal with a view of surrendering all troops to the American forces then about on the line Pilsen—Linz—Enns River. This required a maximum retreat of 200 miles. Rear guards held the front and did not retreat until the 4th. The Russians do not appear to have perceived the German movement until late on the 4th. Then they attacked vigorously, and on the 5th forced the Germans across the Morava River near Olmuetz. The Germans held this line to noon on 8 May. On this day German XCVII Corps with 3 divisions having about 26,000 men, surrendered in north Bosnia to YugoSlav forces.

Notwithstanding the surrender signed by the German High Command which



Patrols of the American First Army met units of the First Ukrainian Front in the Torgau-Riesa area (1) on April 27th. To the north, Soviet troops lengthened their front along the Elbe and drove into Wittenberg (2). German units pocketed southeast of Berlin were said to have driven through the Russian lines to the area of Beelitz (3). West of Berlin the Red Army captured Spandau and Potsdam and took Rathenow (4) in a drive toward a new junction with the Americans who had crossed the Elbe at Tangermuende (5). In the Stettin area the Oder bridgehead was enlarged and Angermuende and Prenzlau were cleared by the Russians (6).



Last organized resistance was here. Soviet troops captured encircled Breslau after an 84-day siege (1). In Czechoslovakia, Russian forces drove into Unicov and Chvalkovice, the latter one mile from Olomouc junction (2). Yugoslav partisans seized Koprivnica and Bosiljevo (3) in a drive toward Zagreb, while Ljubljana was taken in northwest Yugoslavia (4). British Eighth Army troops entered Austria in the Mauthen area (5). The American Third Army crossed the Vltava River northwest of Linz (6). To the north other forces of Gen. Patton seized Bosovice, Brezi, and Vseruby (7).

was to be effective as of 2301 hours 8 May, the Germans on the south front in general did not surrender to the Russians. Their main bodies made for the American lines, covered by rear guards who fought off the pursuing Russians. On 9 May the Russians had hard fighting along the line Elbe River—Sasau River, including Prague and Deutsch Brod. The German rear guard had withdrawn about 100 miles in 6 days. On 10 May, in further fighting, the Russians reached the line Beraun (R)—Beneschau (?)—Gumbolds (R)—Waidhofen (R)—Poechlarn (?)—Leoben—Graz. At the latter place contact was made with the British Eighth Army, from the Mediterranean Command.

On 11 May, in further fighting against the German rear guards, the 1st Ukraine which had sent troops southwest from Saxony reached the line Rakonitz—Pilsen, at the latter place making contact with the U. S. Third Army. The line then ran southeast to Budweis (G) and Linz (US). South of the Danube the Russians generally reached the vicinity of the American lines along the Enns River; on 12 May they reached American and British lines (in the south) throughout, and the campaign ended. The number of Germans who reached the American lines is secret at date of writing.

According to Russian accounts the number of Germans taken by them after the expiration of the surrender hour in the south campaign, was 374,641, exclusive of the 26,000 taken by the Yugoslavs.

Minor Campaigns

Breslau was incessantly attacked. It surrendered on 7 May, apparently on instructions from the German High Command. Russia reports 40,000 prisoners as taken.

A German beachhead on Hel peninsula just north of Danzig, and another one at the mouth of the Vistula River, both held by the German Second Army, held against numerous attacks. They surrendered at the prescribed time in accordance with the signed agreement. Including the island of Bornholm which was part of this German command, the Russians took 60,846 prisoners.

In Latvia a large German beachhead held by the Sixteenth and Eighteenth Armies repulsed a series of attacks up until the surrender hour. They then laid down their arms. Russians report 146,239 prisoners taken in this area.

During the entire period, the Russian reports show about a million prisoners were taken on all fronts.

ITALY (19 Apr to 2 May 45)

Early Operations

The 15th Army Group of Gen. Mark W. Clark, consisting of the U. S. Fifth Army (Lt. Gen. Lucian K. Truscott, Jr.) on the left, and the British Eighth Army (Lt. Gen. Richard L. McCreery) on the right, had attacked on 9 Apr. At first limited to operations on the east flank, on 16 Apr the attack had become general and reached maximum force. On the morning of 19 Apr the line was (from west to east)

Ameglia (German)—Carrara (Allies)—Barga (A)—Fanano (A)—Montese (G)—Zocca (G)—Sasso (G)—Pianoro (G)—Castel San Pietro (A)—Medicina (A)—Argenta (?)—Lake Comacchio.

A secondary attack, under direction of Supreme Allied Headquarters in France, was under way along the French and Italian mountain border, which during the day secured Beuil, 12 miles north of Mentone.

In the main attack the British V Corps made a breakthrough at the extreme right at Argenta, with two infantry divisions and half of an armored one. This corps reached the vicinity of Porto Maggiore. An attack near Medicina also broke through the German line, but this advantage was lost by an enemy counterattack. The Fifth Army made its main effort straight toward Bologna; the 91st Inf Div reached the edge of Pianoro. Smaller advances were made on the west coast and in the Serchio valley.

On 20 Apr the British attack closed around Porto Maggiore, with a view to reaching Ferrara quickly. The former town was strongly defended but advances were made on both sides of it. A new attack from Medicina succeeded in reaching Budrio. The American attack against Pianoro failed to go ahead, but the IV Corps to the left reached the Bologna-Modena Road west of Bologna. This was an American Corps but the advance was spearheaded by the South African 6th Armd Div and supported by a Brazilian division. In the Serchio valley Castelnuovo was reached; on the west coast,

Sarzana. In view of these successes the German High Command decided to withdraw to rear of the Adige River. Their retreat commenced that night.

The morning of the 21st brought bad weather, preventing efficient air operations and favoring the enemy's withdrawing. His rear guards held their lines except on the east, where British troops captured Porto Maggiore, in hard fighting. Next day the Allied line was straightened between Sarzana and Castelnuovo on the west, to Modena (exc), but the enemy east of Modena and north of Bologna held. An attack on Ferrara failed.

Although the German rear guards were fighting well many Germans, influenced by news of events in their home land, concluded the war was practically over. They surrendered in droves. On the 23d the Germans resisted all attacks against Ferrara until late in the day, when they withdrew northward. The same happened at La Spezia and at Modena. The Fifth Army, not waiting for the fall of these places, sent its armor (U. S. 1st and South African 6th) northward east of Modena. These troops by-passed strong forces to reach the Po River south of Mantova. By evening 40,000 Germans had surrendered.

On 24 Apr a part of the German rear guard north of Bologna was surrounded and destroyed near Cento. A strong rear guard action took place at the river crossing just north of Ferrara. The Allied Air Corps savagely bombed retreating enemy columns. On the 25th the Allied line advanced to include Parma—Reggio—Ferrara, with American armor across the Po in the vicinity of Mantova.

The Death of Mussolini

In the morning of 25 Apr the German C-in-C in Italy (Gen. von Vietinghoff) advised Mussolini, then at his command post in Milan, that he was preparing to surrender. He suggested Mussolini join him and advised that he, Vietinghoff, would be in Milan before 1600 hours to discuss terms and sign papers. Vietinghoff's headquarters were at Como, 25 miles north of Milan. He did proceed to Milan as he said he would, but was delayed by a road block held by Partisans and failed to arrive at the prescribed time.

Mussolini, knowing nothing about this, went to the headquarters of Cardinal Shuster at 1530 hours. Despite his name, the Cardinal is Italian, and has been an outstanding anti-Nazi. He expected Mussolini. He advised that the plan was for Mussolini to join the Germans and sign a surrender, then individually take refuge in the Cardinal's headquarters and remain there pending developments. Mussolini waited for the Germans until 1800 hours, but nothing was heard from them. In an apparent rage and suspecting German treachery he left the Cardinal's headquarters and went to his own CP. Here he had a detachment of about 500 Fascist troops. Orders were issued to form a road column and abandon Milan.

It is not known exactly what Mussolini's next movements were. He apparently headed for German GHQ at Como, but whether he got there or not is unknown. He was next reported as near Dongo, on the northwest side of Lake Como, heading north in an automobile with several accompanying cars. There he was arrested by Partisans either late on 27 Apr or early on the 28th. During the morning of the latter day he was summarily shot.

Final Campaign in Italy

On 26 Apr the British Eighth Army crossed the Po and advanced 15 miles to the lower Adige. The Fifth Army reached the upper Adige near Verona with its right, while the armor moved north along the west side of Lake Garda. The left advanced toward Genova on the cost; it occupied Piacenza without resistance.

On the 27th Genova was reached by the 92nd Inf Div, but a German garrison of about 6,000 men held on Mt. Moro. German resistance was found not on the Adige River, but on high ground just beyond the Frassine River. The enemy did not hold this line; he fell back next day to in rear of the Brenta River. On that day the German garrison of Genova surrendered and resistance practically ceased west of the Brenta River.

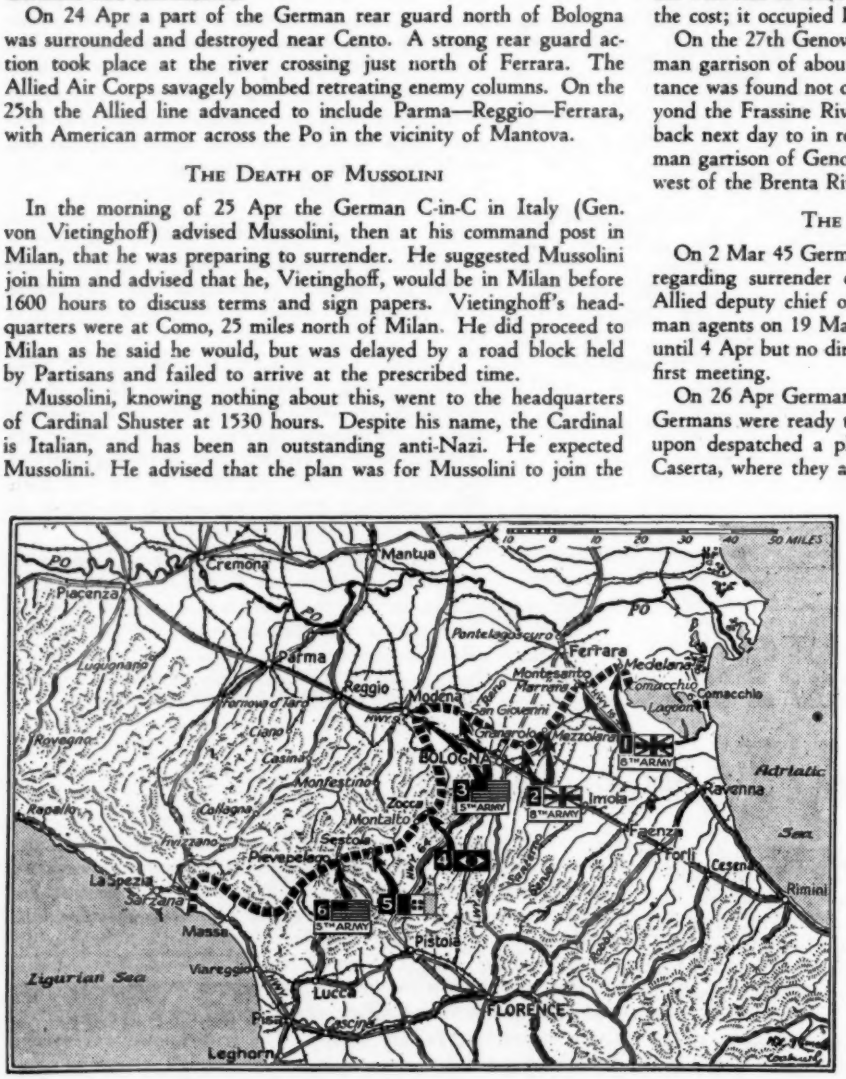
The German Surrender in Italy

On 2 Mar 45 German agents in Switzerland requested an interview regarding surrender of their armies in Italy. General Lemnitzer, Allied deputy chief of staff, went to Switzerland and met the German agents on 19 Mar. General Lemnitzer remained in Switzerland until 4 Apr but no direct contact with the Germans was had after the first meeting.

On 26 Apr German agents in Switzerland made it known that the Germans were ready to discuss surrender. Allied Headquarters thereupon despatched a plane which brought the German emissaries to Caserta, where they arrived at 1600 hours 28 Apr. After some discussion the German representatives, having proper authority to do so, signed an *Act of Surrender* at 1400 hours 29 Apr. It provided:

1. Unconditional surrender of military forces in Italy, less Istria.

2. Hostilities to cease at 1200 hours, Greenwich time, 2 May.



British troops making for Ferrara on April 22 reached Medelana, advanced to Montesanto and mopped up Marrara (1). East of Bologna they took Mezzolara and Granarolo (2). American units seized San Giovanni and pursued the enemy 20 miles northwest of Bologna (3). Brazilians took Zocca (4). Italian Partisans won Sestola (5) and our patrols entered Pievepelago (6).

Final Military Operations

On 29 Apr the Allies crossed the Brenta against light resistance and reached the Piave River. The 10th Mountain Division found strong resistance at the north end of Lake Garda. The German 148th Inf Div, about 6,000 strong, surrendered to the Brazilian division. On the west Italian frontier French troops pushed across the Alps through all passes.

On the 30th the British (New Zealand 2nd Div) crossed the Piave. The 10th Mountain Division in a hard battle cleared the north end of Lake Garda. Part of the success was due to amphibious crossings of the lake. A further advance was made on 1 May. There was no fighting elsewhere. The New Zealand troops crossed the Isonzo, and on 2 May reached Trieste. It seems probable that the Germans facilitated this advance and planned for it. The Allies

were not quite quick enough. Yugoslav troops of Marshal Tito also arrived at Trieste and took over the local government before AMG could do so. Hostilities ceased at noon, in compliance with the surrender act of 29 Apr.

The total number of Germans who surrendered in Italy was about 230,000.

THE SOUTHEAST ASIA COMMAND (19 Apr to 18 May 45)

Operations have centered around the recapture of Rangoon, which is the principal port of Burma. The British Fourteenth Army at the beginning of the period held a line astride the valleys of the Irrawaddy and Sittang Rivers from Singu to Meiktila, facing south. The XXXIII Corps was advancing south down the Irrawaddy valley, the IV Corps followed the Sittang.

The IV Corps had only slight opposition. With the Indian 5th and 17th Divs and one brigade of armor (U.S. tanks) it marched rapidly and reached Pegu on 2 May. On the same day the XV Corps from Arakan, in a shore-to-shore amphibious expedition, landed the Indian 26th Div just below Rangoon. These had been preceded one day by paratroops. Unexpectedly the enemy made only slight resistance within Rangoon itself, his minor forces engaging in a street and house battle to include the 4th.

The XXXIII Corps met opposition near Prome and did not connect with troops from Rangoon until 16 May.

At the end of the period the enemy had troops west of the Irrawaddy withdrawing from Arakan between the Minbu and Prome areas. The West African 82nd Div was advancing from Taungup, and had reached a point halfway to Prome. The XXXIII Corps had road blocks to head off these Japs.

Other enemy forces had gone eastward across the Sittang River and in general held a line parallel to the river in the foothills near Aung Ban (east of Thazi) and Thandaung (east of Toungoo). These hostile forces are based on Thailand.

The former North Combat Area continues to hold the line Hsipaw —Mongyai. This is a Chinese Command.

THE PACIFIC FLEET COMMAND (19 Apr to 18 May 45)

Okinawa

Capture of this island has been the major mission of this command. The original landing had occurred on 1 Apr, and by the beginning of the period the III Amphibious Marine Corps against light opposition had occupied the central and north parts of the island. The XXIV Corps occupied part of the south, but then discovered very strong resistance. For the first 18 days losses had averaged 177 men daily. The Tenth Army was in command. Each corps had 3 divisions.

On 19 Apr the Fleet fired the strongest artillery preparation against the enemy yet fired in the Pacific area. It was supported by a large air strike and land artillery. The XXIV Corps then attacked with the 27th, 96th, and 7th Inf Divs in line from right to left (west to east). The maximum advance was under a half mile, and in general was under a quarter of a mile. The line was across the island from a point 4½ miles north of Naha to a point 3½ miles north of Yonabaru, with an enemy salient in the center, the entire front being about 6 miles.

The attack was continued daily thereafter to include 27 Apr. The Fleet fired about a thousand tons of shells every day in support, while all guns on land and very large air forces attacked the enemy's cave and tunnel positions. Notwithstanding efforts made, the advance was only about a mile on the west coast and less elsewhere. During these nine days our losses on shore were 8,218, or an average of 913 per day, which was over 5 times as much as before. A reorganization was made. The 1st Marine Division entered line on the right.

In the night 3/4 May the enemy attacked on both flanks. An artillery preparation was fired which was followed by a pre-dawn tank attack. At the same time enemy amphibious troops in a shore-to-shore movement landed on both flanks about 3 miles back of the front. It was necessary to withdraw troops from the front line to protect the batteries and command posts. American amphibious tanks went to sea and attacked enemy landing craft. A very mixed and hot battle followed in which our fleet and air forces intervened as soon as it was light; the enemy was then repulsed. After this battle the 6th Marine Division entered line on the extreme right, which with the 1st operated under the III Amphibious Marine Corps. The 96th Div was withdrawn for rest, and the XXIV Corps with the 77th and 7th Divs occupied the east half of the front. The battle for the four days 4 to 7 May cost us 2,910 casualties or an average of 525 per day.

On 8 May a new attack, again supported by the Fleet and the Air Forces, started; it lasted through the 13th. Main battle was on the 12th, on which day the 6th Marine Division made the principal gains and reached the edge of Naha. Weather was bright. American planes had unchallenged supremacy in the air. The Fleet poured about 2,000 tons of large caliber shells on presumed enemy positions. In spite of all this the enemy's artillery, firing out of caves, was stronger than ever, and so accurate and heavy that it was impracticable to bring forward ammunition and supplies over a large part of the front; they were despatched by air and dropped. Hardest fight was in the center around Shuri against the 6th Marine and 77th Inf Divs. The 96th Inf Div, which had relieved the 7th on the east flank, was in a bitter struggle for Conical Hill. The 6-day battle (8 to 13 May) cost us 4,425 casualties or 737 a day.

During the period 14 to 18 May, when this account closes, the fighting continued heavy. The 77th and 96th Inf Divs repeatedly captured the hills in their immediate front. The enemy from cave and tunnel reverse slope positions, not reachable by our artillery fire, shelled our troops off the summits and then reoccupied them. At the end of the period the line was

Naha (Jap)—Dakeshi (US)—Shuri (Jap)—Gaja (US)—Tonabaru (Jap, with a 2-mile salient to the north along the coast and including the air field).

Our total casualties from 1 Apr to 13 May on land were 20,850, and on sea to include 12 May 6,853. The Fleet casualties were largely caused by continuous attacks by enemy planes based on Kyushu and other islands.

The month's advance averaged about 3 miles.

THE PHILIPPINES (19 Apr to 18 May 45)

On 8 Nov 44 Gen. Tomoyuki Yamashita assumed command of Japanese forces in the Philippines. This is the same general who in succession in 1942 captured Singapore, Bataan, and Corregidor. Experienced in the art of war, he at once changed the Jap plan of campaign in the Philippines. Whether this was imposed upon him by higher authority or was of his own conception is uncertain. Present available evidence is that some, but not all, Jap generals within the Philippines had already recommended the change. Yamashita ordered it.

The new plan was to avoid combats with American naval ships, whose forces were overwhelming; also, to avoid positions readily visible from the air. In lieu thereof Jap forces withdrew to jungle and

mountains and organized a number of cave and tunnel positions, a form of defense in which the Japanese have specialized and which is not easily recognizable from the air. All have been beyond extreme range of ship-mounted guns.

Since last autumn the Japanese have not opposed a single landing of American troops. They stayed away from the vicinity of the sea. At first it was believed that the lack of opposition to landings was due to American strategy, which had caught the enemy off-base. This view can not be sustained. It is certain that the Japanese foresaw the Lingayen landing and deliberately absented themselves from that area, where a 3-day air and artillery preparation fell on empty ground. The Japanese were not in south Luzon in force as at first believed, but were in their chosen cave and tunnel positions.

Within the Philippines the Japanese have four main positions and a number of small ones. The defense is not passive, but includes counterattacks. The mission is to detain within the Philippines the largest possible number of American divisions and thus delay a major invasion of Japan or of China.

As very little information is being released from the Philippines, only the bare outlines of what is happening can be given. Casualty reports show that for a 35-day period ending 20 May the Japanese lost 44,271 killed and 1,635 prisoners or an average daily loss of 918. The American loss for a 21-day period ending 6 May was 1,492 killed and 4,850 wounded, being an average daily loss of 302, about 1/3 of the reported Jap loss. The figures indicate some severe fighting, but there has been no release of where or of specific dates.

Japanese Position East of Lingayen Gulf

At the beginning of the period the line was

Baguio (Jap)—Rosario (US)—Balete Pass (Jap)—Baler (?).

This is a mountain line, which is crossed by roads only through Baguio and Balete Pass. The 33d and 37th Inf Divs were attacking Baguio respectively from north and south, while the 32nd and 25th Inf Divs from north to south were attacking along Villa Verde Trail and Route 5, respectively. The highway goes through Balete Pass, which is 75 feet wide between hills 1,500 higher on each side. The trail passes over the crest to the north and joins the highway at Santa Fe 4 miles beyond the pass. This is a first class cave and tunnel position, and it covers the fertile Cagayan valley which raises sufficient food to supply enemy forces.

Our troops have been attacking without intermission. On 28 Apr Baguio fell. On 15 May the 25th Div, reinforced by one regiment from the 37th Inf Div, captured Balete Pass. It had taken 25 days to advance the last 2 miles and four months to advance 20 miles. The rate of advance at Baguio had been about the same. Against enemy caves, best weapon is reported to be the 90-mm AA gun. The 25th and 32nd Divs are now advancing on Santa Fe. To get out of the mountains there remain about 80 miles to go before the Cagayan valley is reached.

Japanese Zambales Position

This is a nuisance position since it overlooks Clark Field and Fort Stotsenburg and is within artillery range of these posts. No reports have been received during the period as to this sector, and it is assumed that the situation is unchanged with one American division besieging an estimated force of perhaps 6,000 Japs who raise their own food. This Japanese force is surrounded and has no communication with the outside, except possibly occasional air service.

Japanese Mariquina (or Marikina) Position

This lies astride the Manila sources of water along the line Ipo—Wawa—Bosoboso, all held by the enemy, who have cut off Manila's water supply since American occupation. It consequently has a high nuisance value.

During the last of April the 43d Inf Div was relieved from line south of Bosoboso and assigned to the capture of Ipo, where is the main dam of Manila's water system. Aided by guerrillas, Ipo was approached from north and south at a distance of 4 miles. The attack started on 10 May and was completed on 18 May (or in 9 days), when the dam was taken intact. Besides artillery, daily attacks were aided by air strikes by bombers and fighters. Tonnage of bombs dropped is reported as about 300 tons a day, by around 22 planes.

This Japanese force has connection over the mountains with the east coast of Luzon. Their bases are in Dingalan Bay and Lamon Bay. On 16 May the 1st Cav Div (dismounted) started an attack from the south against Port Lampon on Lamon Bay. It was aided by naval forces. By the end of 18 May this advance had gained 7 miles and was 1 mile from its objective.

Japanese Mindanao Position

The Japanese general in Mindanao started to organize this position in September, 1944, or before the invasion of Leyte. Within it are 15,000 Japanese civilians who had previously emigrated to the Davao area. Our soldiers have called this *Little Tokyo*, but its location is only approximately known as the troops have not reached it.

On 19 Apr the 24th Inf Div had landed at Cotabato. It moved overland without meeting resistance other than patrols, and arrived on 1 May near Davao, which city was captured on 5 May. All the people had left and so had the houses. These had been torn down and their material taken to *Little Tokyo*. Since then hard fighting has cleared an area around Davao about 2 to 4 miles deep.

The 31st Inf Div landed in rear of the 24th and went north along the central highway toward Macajalar Bay. Enemy was found at Maramag where a week (7 to 15 May) was required to drive him off. The advance then continued, and by 18 May had arrived at Valencia. When the 31st was stopped at Maramag, the 40th Inf Div was landed in Macajalar Bay in rear of the enemy, and advanced south. The Americal Division landed in rear of the 40th. These two divisions arrived near Del Monte and Malitbog by 14 May, where they met opposition. They are 40 miles away from the 31st.

Reports state Japanese defending *Little Tokyo* include 3 divisions and are estimated as between 30,000 and 50,000 strong. Air reconnaissance has failed to locate this place.

Minor Japanese Positions

One each exist in Cebu (northeast of the city), in Negros (in southeast), in Palawan (may be more than one, locations unknown) and in hills north of Zamboanga. There are probably others. There is no information as to operations about these places.

* * *

Eleven American divisions are enumerated above as engaged actively against the four main Japanese positions in the Philippines plus large air and naval forces and a considerable force of service units.

COOPERATION—*ANOTHER INSTANCE*

With the U. S. 1st Infantry Division East of the Rhine.—Lt. George P. Nestor was at his "M" Co, 26th Inf Regt, observation post on the American side of a Luftwaffe airfield in the Remagen bridgehead east of the Rhine. Nestor was firing the 81-mm mortars, and having a field day as the Germans attempted to retake the field.

Targets kept presenting themselves, more missions than the mortars could handle, so Nestor called for artillery. The unit's 33d FA Bn had its hands full at the time so it relayed the mission to another outfit. Nestor fired them, and as the Jerries strengthened their counterattack he spotted more and more targets. He called for more arillery and he got more.

Finally, Nestor asked for some TOT—Time on Target—which the guns gave him with devastating results for the enemy. Later in the afternoon a tally was made as to how much artillery Nestor had fired. It was found that the second lieutenant had fired a whole corps of artillery.

"Now They Can Be Told"

While war was in progress in North Africa, in the Mediterranean, and on the European mainland, security requirements often prevented the naming of units and individuals. Final capitulation has changed that. With the May 8th announcement of V-E Day, full details can be given to that date concerning movements, unit identifications, individual names, and the like—all those intimate items that are both of great interest and the due of those who so gallantly participated in the actions.

This new situation will permit you to write in full of the fire and movement of your units. You can write freely *now*, while details are fresh in your memories. Set down these stories and send them to your JOURNAL; they will be of intense interest and value to artillerymen and historians. Short squibs, detailed accounts, matters both serious and humorous—these all have a place in the record.

You in the Pacific have a part in this too. True, some of your identifications are still subject to blackout, but time and victory will cure that difficulty. You are about to be joined by a tremendously powerful new force from Europe. Although combat-wise, these men have had no oriental experience. Narratives of your own engagements will help them incalculably. We ask your cooperation in helping with this indoctrination.

Whether you are in eastern or in western hemisphere, send your articles directly to us. It is helpful if they are cleared through your Overseas Press Censor first, particularly if you are in the Pacific. If facilities are at hand, type your article double-space on one side of the paper only—but don't hesitate a moment to send along a pencilled longhand draft. The important thing is to set down the combat experiences *now*, and get them in the mail to your JOURNAL.

* * *

As mentioned above, identifications have had to be suppressed in many articles published earlier in the war. We are glad now to be able to give credit to many units and individuals who participated in occidental engagements.

First contribution from North Africa came from the artillery of the 34th Infantry Division, a division that has seen perhaps as much combat as any. One of its units was described by Capt. Norman J. Kinley in *Tunisian Experiment* (page 199, March, 1943).

Close Support in Tunisia was given by the 32nd Field Artillery Battalion, as described by Lt. Col. P. W. Thompson (page 487, July, 1943).

In Maj. Evert E. Stong's account on the *Thala Engagement: February 21-24, 1943* (page 573, August, 1943) the NQth and FTth Cannon Companies were those of the 47th and 60th Infantry Regiments, and the 26th, 34th, 60th, and 84th Field Artillery Battalions were respectively termed the BPth, MDth, PJth, and HNth.

The 1st Armored Division was the subject of Lt. Col. Edwin H. Burba's *Battle of Sidi bou Zid: 15 Feb 43* (page 643, September, 1943). There Col. S. was Col. Stack, the Zth was the 1st Armored Regiment, Uth the 6th Armored Infantry, KFRth the 168th Infantry, and the GTKth the 701st Tank Destroyer Battalion.

El Guettar: March 25-April 8, 1943 (page 645, September, 1943), by Col. Douglas J. Page, described another critical engagement. KMth was the 13th Field Artillery Brigade; BPth, MDth, PJth, HNth, and KGRth were the 26th, 34th, 60th, 84th, and 178th Field Artillery Battalions; and the NQth was the 47th Infantry.

Combat Conclusions of a Medium Battalion in Africa were those of the 34th Field Artillery Battalion, as described by Lt. Col. W. C. Westmoreland (page 649, September, 1943).

Lt. Richard D. Bush, who wrote of *Forward Observation in Africa* (page 771, October, 1943), was with the 68th Armored Field Artillery Battalion of the 1st Armored Division.

Action of the 58th Armored Field Artillery Battalion in the last hours of Tunisian fighting was detailed in Lt. Carl M. Johnstone, Jr.'s *Up Forward* (page 776, October, 1943).

Col. Hamilton H. Howze wrote of the 13th Armored Regiment (called the KCth in his article), in *Artillery Tank Support* (page 779, October, 1943).

In *1st Infantry Division Artillery (March 4-April 8, 1943)* (page 781, October, 1943) Lt. Col. E. S. Bechtold mentioned many units which may now be identified. The Zth was the 1st Field Artillery Observation Battalion; the 5th, 7th, 17th, 32nd, 84th, and 178th Field Artillery Battalions were respectively called the Oth, Qth, AQth, MBth, HNth, and KGRth; both MCth and MDth signified the 33d Field Artillery Battalion, and the 36th was called both CHth and CPth. KCth was used for the 13th Field Artillery Brigade and FOth for the 65th Armored Field Artillery Battalion. 18th Infantry became the ARth, the 39th was called CSth. Two Coast Artillery (AA) Battalions, the 105th and 106th, were termed the KJOth and KJPth. FTKth and RISth stood for the 601st and 899th Tank Destroyer Battalions.

Col. Douglas J. Page's description of *Sedjenane-Bizerte (April 8-May 7, 1943)* (page 783, October, 1943) had to have many descriptions suppressed. 39th, 47th and 60th Infantry Regiments became the CSth, NQth, and FTth. The British brigade was the 136th. Among Field Artillery Battalions, the 26th, 34th, 36th, 60th, 64th, 84th, and 185th were called the BPth, MDth, CPth, PJth, FNth, HNth, and AHOth. Zth was the 1st Field Artillery Observation Battalion, SAth the 91st Reconnaissance Squadron, and Rth the 9th Reconnaissance Troop. DMNth signified the 434th Coast Artillery Battalion (AA), FBth the 62nd Armored Field Artillery Battalion. 894th and 601st Tank Destroyer Battalions were called the HSNth and FTKth.

Tunisia's Burma Road by Lt. B. H. Kerr (page 785, October, 1943) described work of the 18th (ARth) Combat Team, the 6th (Uth) Armored Infantry, and the 37th (BQth) and 68th (PHth) Field Artillery Battalions.

One of the army's best-known regiments has been the 36th Field Artillery. Its first battalion was the subject of *Long Toms in Action* (page 803, November, 1943), by Maj. E. A. Raymond. Commander of this battalion at that time was Lt. Col. Johnson Hagood, Jr.

Capt. Woodrow M. Smith was writing of the 151st Field

Artillery Battalion of the 34th Infantry Division, in *A Summary of Tunisia* (page 836, November, 1943).

Lt. Col. Joseph R. Couch took his *Snapshots* (page 889, December, 1943) when with the 17th Field Artillery.

The 1st (Zth) and 13th (KCth) Armored Regiments, 81st (RAth) Reconnaissance Battalion, and 443d (NNCth) Coast Artillery Battalion (AA) were the subjects of *Some Tunisian Details* by Col. C. C. Benson (page 2, January, 1944).

Lt. Col. E. H. Burba was commanding the 68th Armored Field Artillery Battalion at the time of *Sidi bou Zid to Sbeitla: Feb. 14-17, 1943* (page 8, January, 1944).

Slugging It Out by Maj. E. A. Raymond (page 14, January, 1944) outlined the actions of the 601st Tank Destroyer Battalion (called the PJKth in the article) at Sbeitla and El Guettar.

Three Field Artillery battalions were disguised in *Night Fighting* by Capt. Sydney S. Combs (page 99, February, 1944): the 32nd, 68th, and 91st were respectively named the MBth, PHth, and SAth.

Maj. E. E. Surdyk gave *Italian Glimpses* (page 129, February, 1944) as seen by the 151st Field Artillery Battalion of the 34th Division.

Lentini—14 July 43 (page 165, March, 1944) held outstanding examples of small-unit action, here well told by Maj. Edward A. Raymond. The 124th Field Regiment was called in the story the KBNth; the 69th Infantry Brigade became the FSth; the 288th, 441st, and 489th Batteries were called the LHRth, NDKth, and NHSth; and O E.Y. stood for the 5th East Yorks.

Capt. Howard A. Smith served with the 34th Division. In *Among Those Baptized* (page 214, April, 1944) were mentioned the 168th (KFRth) Infantry and the 175th (KGOth) Field Artillery Battalion.

Company I of the 15th Infantry was described in *Infantry—Artillery on the Anzio Beachhead* by Lt. J. W. Ault (page 404, July, 1944).

The 17th Field Artillery Battalion did the *"Sniping" with a 155-mm Howitzer*, as described by Lt. Col. Joseph R. Couch (page 412, July, 1944).

Dirty Work at the Crossroads (page 412, July, 1944) was done by the 995th Field Artillery Battalion, according to Capt. Edward G. Seidel.

Lt. David E. Olson was writing of the 87th Armored Field Artillery Battalion, in *Normandy Armored RSOP and Survey* (page 681, October, 1944).

The 776th Tank Destroyer Battalion was discussed in *TDs Approach Maturity* by Lt. Col. J. P. Barney, Jr. (page 775, November, 1944).

Pre-invasion experiences of the 29th Division Artillery were described by Lt. Bruce Bliven, Jr., in *How We Trained for D-Day* (page 11, January, 1945).

Lt. John J. Osborne was with the 173d Field Artillery Group when undergoing his experience with the *Mediums at Mantes* (page 44, January, 1945).

Variations from Standard (page 66, February, 1945), as outlined by Maj. James F. Cantwell, were those of the 695th Armored Field Artillery Battalion.

Col. William C. Hall was with the 1306th Engineer Regiment when he wrote *Harassing Fire* (page 68, February, 1945).

The 110th Field Artillery Battalion was concerned in Maj. Donovan Yeuell, Jr.'s *Random Reflections on Light Artillery in Combat* (page 70, February, 1945).

Sound Locations as obtained by the 904th Field Artillery Battalion were described by Capt. Eugene Maurey, Jr. (page 73, February, 1945).

The 28th Division's 109th Field Artillery Battalion was the subject of *There Is One Thing About Combat* (page 74, February, 1945).

Battle Notes (page 155, March, 1945) gave experiences of Maj. Harold S. Davis with the 255th Field Artillery Battalion.

The 224th and 345th Field Artillery Battalions were the units of Capt. H. R. Ostler (page 170) and Lt. Col. Frank W. Norris (page 171, March, 1945), when they discussed service *In France With 105s* and *With Mediums.*

Armored FA Across France by Lt. Col. I. B. Washburn (page 204, April, 1945) described the progress of the 71st Armored Field Artillery Battalion of the 5th Armored Division.

Close Support at Kaltenhouse (page 205, April, 1945) was rendered by the 904th Field Artillery Battalion of the 79th Infantry Division, according to Capt. Eugene Maurey, Jr.

B Battery's Belgian Baptism (page 280, May, 1945) refers to the 18th Field Artillery Battalion.

The Reconnaissance Company of the 701st Tank Destroyer Company performed the *TD Reconnaissance at Anzio* as described by Capt. Lewis A. Clarke (page 285, May, 1945).

T. D. Battle Lessons (page 287, May, 1945) were those of the 821st Tank Destroyer Battalion of the 29th Infantry Division.

Lt. William R. English wrote of the 208th Field Artillery Battalion's *F.D.C. Expedients in the E.T.O.* (page 350, June, 1945).

The 93d Armored Field Artillery Battalion fulfilled the *Garigliano Mission* (page 359, June, 1945).

GERMAN SELF-PROPELLED MOUNTS

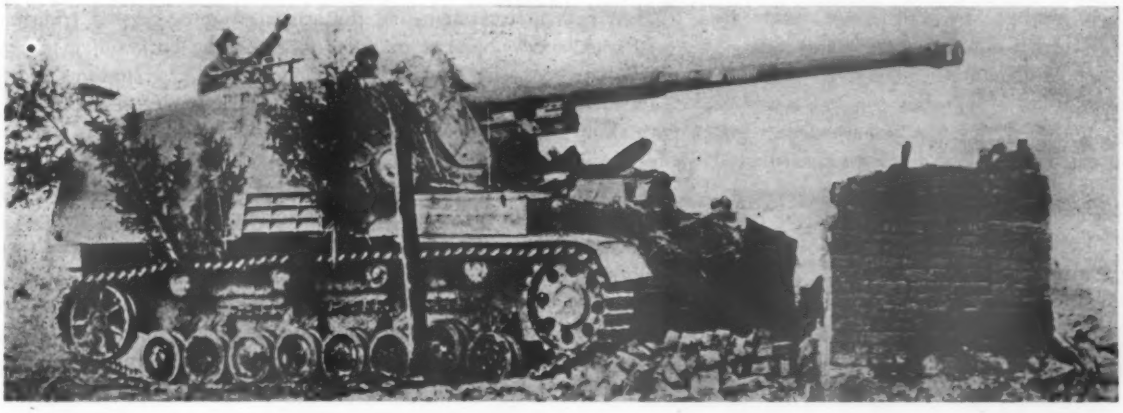
Adapted by Lt. Col. G. B. Jarrett, Ord. from Lt. Col. Von Kugelgen, German Army, writing in "Motorschau", Berlin, 1944

Ordnance Department research on items of captured enemy equipment is concerned not only with an engineering analysis but also with development theories and backgrounds from which a trend-analysis can be made. The following material is a translation of a German thesis on the subject of self-propelled artillery. This has been freely paraphrased from a literal translation, but without changing the meaning. It becomes fascinating reading in the light of over-all German mi

tary operations throughout this war, the immense amount of destruction caused by these operations, and especially now that the long-expected eventual collapse of the Nazi armies has occurred.

A noteworthy point is that the German Panzer Jaeger or armored self-propelled antitank gun has never had a 360° traversing turret. Such a gun has always been a forward-firing weapon in German concept. It has been forced to de-

Among Germany's hardest-hitting self-propelled guns are the various versions of the 8.8-cm FLAK. As shown here, mounted on the chassis of a PzKw IV and called a Hornisse *by the Germans, it served on the Russian front and outperformed the* Ferdinand. *Here we have one of the seven antitank versions of the FLAK 41. Each of them fires the same round as shown above, whether the piece is technically the KWK 43, PAK 43, PAK 43/41, or the PAK 43/1, 2, 3, or 4.*



pend on the turning of the vehicle for wide fields of fire—which under certain conditions has its disadvantages. Like many of the German developments examined in this war, this type of offensive weapon contains violent inconsistencies. The accompanying illustrations show some of the most important enemy self-propelled mounts.

"In the past decade the decision to motorize armies has been difficult. This has been proven by the gradual development by all countries of the wheeled and self-propelled mounts. When Columbus asked at the proverbially famous dinner party how an egg could be balanced on end without tilting, a storm of indignation arose when Columbus put the egg on the table with a hard stroke after careful balancing had had no success. A certain part of the storm of indignation raised by the tradition minded always insults the daring. One is attacked from all sides when he cuts a Gordian Knot in an emotion or when he smashes an egg on the table in order to help a new idea break through with the necessary force.

"The former Colonel Guderian, who at one time was chief of the Motor Vehicle Combat Troops of the Wehrmacht (today called Inspector of the Armored Troops), was assigned to General Lutz, the first General of the Armored Troops. Before the commencement of the present war Guderian devoted himself completely to the new idea of tank warfare, the mobile warfare which grew to a large scale and became extensive through development of the engine. The idea of forming an armored division ripened in Guderian's mind. A task force when motorized and armored becomes highly mobile, has tremendous striking power, and usually is armored sufficiently to resist most punishment. This opened the way for large-scale wartime operations, and the history of German tank warfare in the present war has proved the basic deductions to have been correct. The idea of the self-propelled mount followed necessarily as an added arm to the tank itself.

"The carriage for any gun is its support, providing a firm base so that when the gun is laid properly its projectile will strike where intended. The carriage is the part of the gun which achieves stability on the ground when fired, but when

By the time of our North African campaigns the Germans had mounted Russian 76.2-mm antitank guns on the Czech (Skoda) T.N.H.P. light (10-ton) tank chassis.

considered as the conventional wheeled carriage it offers a drawback which increases slowness of the movement.

"When towed, the gun moves into the battle at a great disadvantage. In order to fire it has to be stopped and the crew has to jump off the vehicle to bring the gun into position; in other words, the crew must unlimber and bring it into combat position at the proper place, the muzzle pointing toward the enemy. Thus, in addition to other hard and time-consuming work, the gun must be turned through 180° to fire. That means not only the loss of time, but also that the horses or prime movers, which are vulnerable to enemy fire, must be withdrawn from the battlefield to a safer place. When required for further movement, these aids must be brought back.

"Colonel Guderian, who conceived the idea of the Panzer Jaeger, was filled with enthusiasm. He found cool disapproval in the planning section, but he nevertheless suggested making the mount self-propelling and consequently 100% effective in battle. The strength of the artillery consists of its accuracy and danger zone as well as range; and the range has, since the time of the 'Big Bertha' and the 'Lazy Grete,' always provided a time element for the gun. Thus, artillery has usually had time to roll toward the enemy calmly, the muzzle pointing away from him. With Guderian's new armored spearhead for Blitzkrieg or fast-moving attack, towed cannons were far too slow. In modern armored warfare things happen so fast that there is no time left for the old way.

"Guderian, today the General Inspector of the Armored Troops and Chief of the General Staff of the Army, carried this realistic picture of future warfare in his heart. He knew it as one of space and movement for armor and airplanes. In the future all-out war he would need the artillery which rolls with its barrels toward the enemy in constant readiness for action and which can move on any terrain, assuring the support of heavy weapons against an armored enemy. The artillery must keep up to the speed of an armored advance. Only then is armor safe against any surprise. This thought seems to us today as simple as the egg of Columbus. The gun is mounted on the chassis of a tank and the crew rides along on the self-propelled mount, protected by a shield of armor.

"Guderian's ideas were established in the early '30s before the Blitzkrieg was sprung in Europe. Today the idea of the self-propelled mount is soundly incorporated in all armies and Germany leads the way in the field. The controversial part has long been overcome. Today the self-propelled mount includes support artillery, the assault gun or antitank gun, and the dual-purpose AA-AT gun. [The German claim to origination of the self-propelled gun is not substantiated. Jarrett.] The old towed artillery still holds its ground in many tasks and is not denied the distinction. It is used to support normally defended areas in the conventional manner. By the same token the self-propelled artillery supports the armored force but is geared to as much speed as the tank. The self-propelled unit can always stop and be dug in if it is needed in support of the infantry in an already prepared position.

"The armored division, the most decisive factor of modern warfare, needed all types of weapons. As is well known, the division is the smallest unit which is capable of independent operational tasks, because it has all branches of service at its disposal. In order to make the weapons useful it put them on self-propelled mounts, just as it loaded its infantry force on armored combat vehicles (the armored personnel carriers). In constant evolution, the antitank gun appeared on a self-propelled mount, the antiaircraft gun (single barrelled of any caliber, two-barrelled, four-barrelled) on self-propelled mount. Infantry howitzers on self-propelled mounts were added to the artillery on their self-propelled mounts. The motorization and the armorization originated from a general development in order to reach the optimum in the armored division and in the armored idea. These concepts and weapons of motorization reacted upon the general set-up of the Army. Self-propelled mounts are also found in every infantry division.

"The use of self-propelled mounts, and the importance of their aid, have increased during the present war. For armored troops they have been of great assistance and a step in the development of the power of the armored division. For instance the small antitank gun (the 3.7-cm Pak) could not satisfy the demands for repulsion and destruction of enemy tanks as they progressed in armor and power. The immobility of the defensive gun of fixed position threatened to be defeated by the mobility and maneuverability of its major enemy, the enemy tank. The increasing strength of the tanks resulted in the design of increasingly stronger Paks (*Panzer Abwehr Kanone*). The greater their power, the heavier and consequently less mobile they became.

"Therefore it is no wonder that the Pak was developed with a self-propelled mount in constant step with the immense development of the armored weapons in this war. Under the influence of the aggressive tank, which knows only the offensive battle, the Pak tried to change from a defensive weapon to a 'Hunting Weapon' (Panzer Jaeger). The antitank gun on self-propelled mount—the 8.8-cm Pak (Sf) 'Hornisse' on PzKw IV chassis—is unquestionably the optimum in this development. The achievements of this heavy tank destroyer have been immense and are still immense today. Nevertheless, this type of vehicle can be considered as obsolete today

The combination of self-propelled mount and gun pre-shadowed the organically developed destroyer, just as the assault gun originated from the original artillery on a self-propelled mount which is very similar to the tank destroyers. The main difference from the tank noticeable from the outside is that a 360° turret is not provided; the gun is rigidly connected to the vehicle with only a small traverse; the vehicle must be turned according to the desired deflection required.

"The tank has a turret and can fire in all directions by rotating it. This development was natural owing to the disadvantages seen in the original improvised solution of the self-propelled mount. In addition, the original models were too high and thereby gave too much target adea for the enemy gunner. It was not only important to mount the gun on the chassis, but to fit it into the hull of the chassis in order to give it the low silhouette with a minimum target area as is found in the new tank destroyer.

"In foreign countries the development of self-propelled mounts and assault guns for armored troops came to full scale only after the successes of the German armored divisions demanded urgent countermeasures. The German example was followed only hesitatingly and not by copying all types of weapons in the same degree.

"The idea of the self-propelled mount has unquestionably succeeded. The battle-deciding pace of motorized and armored units represents an accomplished fact on all fronts and with all belligerents. There need be no question but that the idea of motorization and armorization with its attending mobility is worth while for all branches of service of any army. As an expedient the self-propelled mount has fulfilled its purpose in the infantry, artillery, and flak. In the case of armored troops the development of the self-propelled mount as an individual and organically constructed weapon has proved well founded and will continue in future development."

VI CORPS ARTILLERY COMMUNICATIONS

By Capt. Harry M. Foos, Jr., FA

Being about the oldest Corps Artillery Headquarters in combat, we have had much varied experience with that all important subject on artillerymen — COMMUNICATIONS. I don't think there is any innovation in artillery communications we haven't tried; we kept it if we thought it good and rejected if we thought it bad.

This headquarters was activated provisionally just prior to the Salerno Landing. Our enlisted cadre came from Fifth Army Tank Destroyer School and the Signal Company of the 1st Armored Division. Filler replacements joined us about D+20 (Salerno D-day). The period from the beaches of Salerno to the Venafro Valley was a "honeymoon," as we had the veteran 13th Brigade in command of the Corps Artillery and we merely furnished the communication link between Corps Headquarters and the Brigade.

We came of age when we landed at Anzio and found ourselves in the middle of the bloodiest battle of the Italian campaign. There we had one of the most comprehensive artillery wire nets I ever hope to see. After the breakout from the beachhead and the advance on Rome, we were relieved by the IV Corps Artillery and together with veteran battalions and group headquarters returned to Naples to stage for the Southern France landing.

D-day on the Riviera found us ashore and working. Resistance broke quickly and was followed by the pursuit up the Rhone Valley. A small CP with counterbattery and communication personnel had some activity at Montelimar, where the Corps blocked the Rhone Valley behind the retreating Germans. Centralized control of Corps Artillery, until then attached to divisions, was assumed when the pursuit petered out against the Moselle River. Then followed the Vosges campaign of the fall of 1944, followed by the Corps' successful breaching of the Vosges winter line and our advance through the mountains and up the Rhine Valley to the German border.

The see-sawing Alsace winter campaign gave us our first taste of a withdrawal, a fine problem in communications. Then came the spring drive through the Siegfried Line and across the Rhine to Bavaria, where we are currently operating.*

Radio

We have a Corps Artillery Fire Division Net (called by other names in various Corps) in which all Corps Group Headquarters, Corps Field Artillery Battalion Headquarters, and Division Artillery Headquarters are required to operate. We do not require the divisional battalions even to listen (as do other Corps), as we found that an operator who listens and doesn't transmit isn't there when we need him. Instead Div Artys procure an extra SCR-193 and operate their own net to replace the temperamental SCR-284 (or 694). Besides, the

*Written in the middle of April, 1945. Ed.

Corps Net normally has too many stations for efficient operation. An ideal solution would be two nets, one for corps battalions only and one with FA groups and DivArty only, with CorpsArty as NCS of both. We have tried this, but had to give it up due to lack of nets for echeloning. Over this net we broadcast Bingos (Serenades to the rest of you ETO'ers), metros, tactical traffic, time synchronizing signals, and even emergency administrative traffic. On three occasions we have used it as the sole communication within the Corps Artillery when the situation became open and the artillery was mostly displacing to keep up. It worked! Communications were not luxurious but they were adequate.

A SCR-399 team, borrowed from Signal Corps, is used to work back to the Army Photo Center. This high-powered set is necessary to work the distance involved (never less than 100 miles) in this net. It is a wonderful set and has a high traffic potential, which of course is not used to its fullest but it's there whenever needed.

SCR-542s are used for Arty/R shoots. As any user knows, it is a very delicate set. It is SOP with us to always have at least two sets at the battalion shooting. The Corps Artillery set is maintained by our operator, who is a fine technician on the set, so usually ours is the set that works. He maintains the other sets also, but between shoots awful things seem to happen to the group and battalion sets. But in spite of all this, we have always had a working ground set for every shoot. If Arty/Rs are to be SOP in the Army, we need a dependable ground radio set designed and issued instead of this makeshift.

SCR-284 and 694 are used but seldom. Groups rely on SCR-608s for their group net. At Corps Artillery we turned the 284s in. Some use is made of them by corps battalion in a FDC-OP net where the 608 won't pull the distance. More SCR-193 or 506s are the solution.

The 600 (and 500) series have proved themselves; they are good nets and used extensively by all. More 608s are needed in the firing battalions. The heavy battalions need them in each battery, as separate battery FDCs are so often necessary. In mountainous country extensive use of relay stations is SOP.

Take time to locate your radio stations on the highest hill near by. It pays off in better range.

Wire

Wire communication remains the backbone of the artillery. Corps artillery has many problems to solve with a limited amount of wire personnel and equipment. It is normally deployed over the corps front, a distance that has been anywhere from twenty miles (smallest on record with us) to ninety miles. It is desirable to install circuits to division artillery headquarters, but except in a stable situation it is impossible to lay to any one but the groups. DivArtys must be reached through the circuits of the reinforcing group or the Corps-Division wire net. Field wire is not plentiful and must be recovered—and this with 24 men in the wire section who are building a new wire net simultaneously about twenty miles ahead of the abandoned wire!

T/O lists two switchboard operators. I have four all the time and could use four more for local installation and to operate forward switches. Our 2½-ton trucks are fine for long lines but the total wire section trucks are not adequate to carry the amount of wire needed for one installation (som 120 reels) plus the switchboard equipment and personal equip ment of the men. The ¼-ton truck is the ideal vehicle fo maintenance and recon work in the wire section, but often th only one available is the communication officer's. The wir sergeant gets it when available, but he needs several full-tim for the best job.

We are using wire W-143 exclusively on all trunk lines. I is harder to install and recover, but it is the ideal thing fo trunk lines the length of ours. With this wire we can als use the laterals between groups when main routes go ou Twenty-mile lines with this wire are not unusual for us, an we have had up to 30-mile lines work satisfactorily. An inte esting note is that we have had a lower trouble record wit W-143 than with W-110.

Our normal switchboard is the TC-4 For fast operatio and adequate drops it can't be beat. Neither we or our regu lar groups and battalions use FDC switchboards: that systen ties up too many valuable circuits and is a lot of trouble t install. Units coming from other corps use them; we don discourage them, but we don't let them put main trunk ci cuits in FDC boards.

Wire supply usually is a 50-mile haul each day. It is n tioned, so wire must be recovered.

Commo and Message Center

Our communication office and message center have bee blended into one unit. It consists of the communications chie the message center chief, the code clerk, and a typist. A work interchangeably in the message center. The chief task o the comm chief and the typist is publishing the weekly SO (we do it rather than corps) and handling the communicatio administration, which is considerable. It is a small SOI con sisting of only essential items and stripped of all lengthy i structions, etc. We find that by thus having control of th SOI it is much easier to publish supplements as new uni move into the Corps and get them into the hands of the arti lery units more quickly. That's important, the way units ar shifted within the Army.

We handle as much messenger traffic daily as do the div sions of the corps. And with insufficient personnel. We lic this during busy periods by setting up a separate code sectio in the operations room with a direct line to the radio statio This separates the messenger and the code work. Personn for the code room come from the observation battalion or on of the heavy (240-H) battalions who are not too busy firing For most messages on the SCR-193 net, Converter M-209 used. It's a little longer to encode and decode messages bu the added security is worth the time. Remember that Germa Radio Intelligence get most of their information from artiller nets. Fire missions or enemy information, of course, go i the clear.

Pick good sober men for agents. It is a mighty importa job and should be treated as such. See that your man h a map (and can read it) and a dependable vehicle.

Signal Corps Help

No article on Corps Artillery communication would be com plete without giving credit to the help given by the Corp Signal Office and Corps Signal Battalion. They have be

fine. We have a teletype team attached that is connected to the corps teletype board. All sitreps and isums sent to corps by divisions come to us also, and our S-2 gets the big picture fast and accurate. It has been a big help.

Our SCR-399 comes from Corps too. And whenever an extra SCR-193 is needed for special liaison missions it can be procured from them.

For a long time we had a Signal Corps wire team attached. It was a big (7-man) team and helped us through the busiest spots of the current campaigns. Usually, on extra long lines, Corps Signal will furnish us open wire or a carrier channel.

The Corps Sig Bn also handles 2nd and 3d Echelon Signal Repair for us. It is always well forward, when other Sig Repair is not. Also, the same people periodically furnish inspection and repair teams that go around to all the corps artillery units. They manage to keep our equipment in tip top shape.

Last but not least, the Corps Signal Battalion furnished the Communication officer (that's me) when the Corps Artillery was activated. I can always get help from my friends in Signal when I need it.

DAWN OF A NEW ARTILLERY ERA

By Maj. J. R. Murland, 5th Royal Inniskilling Dragoon Guards, British Army

It is already clear that the development of rockets during World War II marks the beginning of a new era in military weapons, though the present titles of two units of the British Army—"'O' Battery Royal Horse Artillery (Rocket Troop)" and the "52nd Field Battery Royal Artillery (Bengal Rocket Troop)"—recall that rockets are by no means a new development in warfare. They were first introduced in the 18th Century, and in 1812 a Field Rocket Brigade was formed in Britain.

Technical advances in the more normal artillery weapons, such as the rifled bore and breech-loading, retarded and finally stopped further progress with rocket weapons until World War I when attempts were made to design rockets for use against aircraft. These attempts were not very successful, so that modern British rocket artillery may be said to date from 1936, when the problem was investigated by a team of scientists under Sir Alwyn Crow, now Controller of Projectile Development at the Ministry of Supply. Their researches culminated in the "Z" antiaircraft rocket gun which has been in use since the beginning of 1941 and which has undoubtedly achieved the most effective antiaircraft barrage in the world.

The application of rocket artillery to land targets was the next step, and in this role rockets were fired from ships during the Sicily, Salerno, and Anzio landings. The technique learned at these landings was later used with devastating effect on D-day, June 6, 1944, when intense rocket barrages were put down to cover the initial assault from the sea.

Once again history was being repeated, for ships fitted to fire salvoes of rockets had been used against Boulogne in 1806. On that occasion the rockets were deflected by the wind from the fortifications at which they were aimed, but they were said to have done considered damage in the town.

This inaccuracy is the worst feature of any rocket projectile, and even today it presents the greatest problem yet to be solved in the evolution of rocket artillery weapons. It arises mainly in a short period of time immediately after firing, during which the rocket tends to be ballistically unstable and liable to be deflected from its course. The rocket has then just left its projector and is moving relatively slowly, for its great acceleration takes place during flight

When fired from aircraft the accuracy of rockets is considerably improved, as they then start their flight with the velocity of the airplane itself. This helps to overcome the short period of ballistic instability and makes the rockets much less liable to deflection. Their effectiveness was more than proved during the Normandy campaign when, on August 7, 1944, Typhoons of the Tactical Air Force destroyed 88 tanks and broke up the heavy German counter-attack towards Avranches.

On land, the equipment used for rocket barrages comprises groups of 12 projectors which are comparatively light and easily moved, although each has 30 barrels. The group can thus fire 360 rounds. One great advantage of the rocket projector is its ability to produce an initial salvo which by its unexpectedness and concentrated weight has a very powerful lethal and moral effect. Simplicity and ease of production are the outstanding features of these projectors, which were employed in the reduction of the Wesel bridgehead and later in the barrage which preceded the crossing of the Rhine.

Against these great advantages must be set the difficulties of ammunition supply; the projectors can fire such a weight of rockets that their supply over long periods presents a complex problem.

For the future, there would seem to be three lines of development along which rocket weapons will probably evolve. The first, and most important, must be toward improvement in accuracy. When the accuracy is comparable to that of the conventional gun, one of the major disadvantages of the rocket will have been removed and it will better be able to supplement artillery fire. Secondly, it seems likely that rocket technique will permit the use of extremely high velocities, with consequent increase in armor-piercing properties. It must remain to be seen whether such weapons will drive armored forces from the battlefield as cavalry was driven by the machine gun.

Lastly, there must be far-reaching developments in the ultra-long-range rocket controlled by radio. The strategic implications of such a weapon are immense, and they must revolutionize our conceptions of security from attack.

A recent survey of the project comments that "transatlantic rocket shells weighing perhaps 100 tons must now be regarded as a distinct possibility within the next five years." Against this possibility, it will be recalled that no weapon has yet been invented for which an appropriate counter-measure was not forthcoming.

Not in the BOOK

EDITOR'S NOTE: *This feature is devoted to ideas sent in by our readers describing methods or devices which, though not specified by official literature, have proved useful in service.*

VCO SITE FAN

Many devices have been developed to be used by the VCO as "crutches" or aids in computing site. The "Site Fan" as designed will greatly expedite the work of the FDC. The VCO is the operator in FDC who has the most computing to do, and the "Site Fan" is designed to save him time in computing. With the "Site-scale" on his fan, the VCO can determine correct sites without touching paper, pencil, or any kind of slide rule.

The "Site-scale" is simply a strip of paper attached to the range deflection fan. It is ¾" wide and long enough to run from a range of 1,600 yards to 11,000 yards on the standard 1/20,000 fan. It is divided into 14 sections, each of which gives the sites for any difference in altitude between the gun and the target for any given range.

Heavy lines across the "Site-scale" are range-lines, and are drawn on across to the right edge of the fan itself, through the corresponding ranges. From bottom to top these lines correspond to the following ranges: 1600, 2000, 2500, 3000, 3500, 4100, 4700, 5300, 5800, 6500, 7200, 8000, 9000, 9800, and 10,800, as shown in the drawing. Between any two of these lines there appears (on the strip)

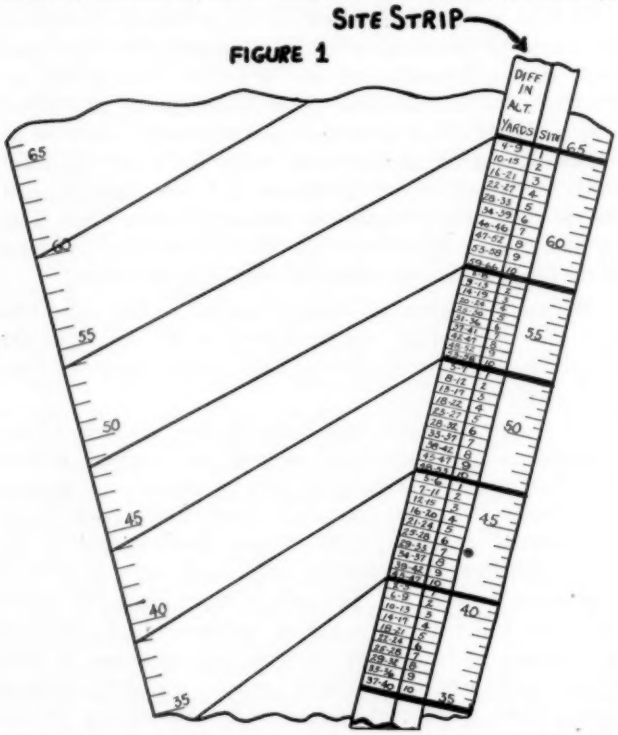


FIGURE 1

a site table. This table is broken down into two columns, the left one of which gives the difference in altitude (in yards) between the battery and the target, and the right column gives the site for that difference in altitude, for all ranges between the two heavy lines.

Use

After the VCO has plotted the target and determined the altitude, all he must do is center his fan at the first battery; determine (usually mentally—by inspection) the difference in altitude between the battery and the target (example: 37 yards); next note the range at which the target plots from the battery (example: 6,400 yards); and opposite the difference in altitude, in that box, read the site (±6 mils). Since 6400 falls between the lines at 5800-6500, the only possible site would be ±6 mils.

Due to the limited space on the range deflection fan, the difference in altitude can only be carried up to a certain number of yards. Site can still be determined from the fan, however, as shown by the following.

Example

We find the range to a target is 5500 yards and that the difference in altitude between the battery and the target is 78 yards. Note that the box in which 5500 falls only goes to an altitude difference of 58 yards. To get the site for this target, take the site for 39 yards (7*mils*) and multiply it by 2 (14*mils*).

$$\frac{78}{5.5} = 14\textit{mils of site}$$

Off-Scale Charts

If an off-scale chart is to be the firing chart, all that is necessary is to draw in the lines by using the photo-ground relationship, as shown in Fig. 1. These lines are put on the fan at the ranges corresponding to the range lines on the "Site-scale."

In the example used, the photo-ground relationship is

$$\frac{P}{G} = \frac{4300}{5150}$$

Using the left edge of the fan for the photo distances, we find that a target plots at a photo range of 4350; the difference in altitude between the battery and the target is 27 yards. Moving over to the right edge of the fan, this puts us in the site box between ground ranges of 4700 and 5300 yards. In this box opposite 27 yards we find the site to be ±5 mils.

Flexibility

The "Site-scale" could easily become a permanent part of the VCO's range deflection fan: be cemented to the fan and completely covered with cellulose tape for protection from the weather. This same scale could be made for all ranges and to fit any graduations of the range deflection fan, whether it be 1/20,000, 1/25,000, etc. The "Site-scale" could be printed on acetate and there would be no interference with the deflection arcs at 4900 and 7900, such as there is with the paper strip.

If one operator were a casualty, it would be a very simple matter for one man to be both HCO and VCO by using the "Site-fan."

This fan was not built with the intention of being the "only" method of obtaining sites, but rather as an expedient to be used in advanced training and in combat.

LT. HAROLD C. MORRISON, FA

COMPASS TRAINING SPEEDED

Drive a stake in the ground, and (say) 200 yds. away in a known direction drive a second stake so its top is within an inch of the ground. If the second stake is in grass so much the better, as then it can not be seen until one is right on top of it. Next work out trigonometric figures that will start at one stake and end at the other. Write each route on a card for the student to take with him while he runs the course. Examples: "March 83 yds on 200*mils*, 50 yds on 900*mils*, 85 yds on 1600*mils*"; "March 100 yds on azimuth 90°, 100 yds on azimuth 30°, 100 yds on azimuth 120°." Students should wind up very close to the second stake.

With a dozen compasses such a course will handle 50 men in an hour. Students can start at intervals of a minute or less without interfering with one another. All remain within sight of the instructor, who can then help any who get into trouble. Perhaps best of all is the way back-azimuth loses all its mystery if students are required to run the course in reverse direction from the way their instruction cards read.

LT. MANFRED W. EHRICH, FA

Diary of War Events

(As taken from the American Press—Edited by B. H. W.)

MAY, 1945

1st U. S. Army captures Braunau, Hitler's birthplace.
Allied troops invade Borneo, Jap-held Netherlands East Indies.

2nd Russians capture Berlin. Seize 70,000 prisoners. Col. Gen. Von Vietinghoff, commanding German forces in northern Italy surrenders unconditionally.
British paratroops and invasion forces land on both banks of the Rangoon River below Rangoon in Burma.

3d Allied planes bomb huge armada attempting to evacuate Germans to Scandinavia. Sink or damage 64 ships.
U. S. casualties in Italy total 21,557 killed, 77,248 wounded, and 10,338 missing.
British 14th Army captures Rangoon in Burma.
U. S. troops in the Philippines fight their way to Davao, capital of Mindanao.

4th German forces in the Netherlands, Denmark, and northwestern Germany, including Helgoland and the Frisian Islands surrender.
Jap planes sink 5 U. S. warships off Okinawa. Lose 150 planes in the attack.
Australian troops on Tarakan Island off Borneo seize part of the city of Tarakan.
Adm. Mountbatten announces the end of the Burma campaign.

5th The German 1st, 19th and 24th armies surrender to U. S. 7th and French 1st Armies.
U. S. troops on Mindanao capture Davao.

6th U. S. 3d Army advances deep into Czechoslovakia along a 150 mile arc.
Portugal breaks diplomatic relations with Berlin.
Australian and Netherland troops on Borneo capture Tarakan city and airfield.

7th War ends in Europe after 5 years, 8 months and 6 days. Germany surrenders unconditionally to the Allies.
U. S. troops on Okinawa score advances. Pacific Fleet planes destroy or damage 13 Jap ship off Korea and Japan.

8th Germany's unconditional surrender effective 2301 hours.
President Truman proclaims V-E Day in the United States at 0900 hours.
Allies sink 18 more Jap ships off Korea and Japan.
Japs counterattack on Mindanao and cut off 1 U. S. Bn in the Davao area.

9th Russian tanks enter Prague and wipe out German bands still existing after surrender order. German guerrilla pilots bomb the city.
U. S. 7th Army captures Herman Goering and Field Marshal Kesselring.
400 B-29s bomb the Inland Sea area of Japan without a loss.
Allied amphibious operation engulfs the island of Samal, off Davao.

10th Russian armies continue to battle German troops in Czechoslovakia who refuse to surrender.
War Department announces a point system based on length of service, combat record, and parenthood for demobilizing 1,300,000 soldiers.

11th U. S. troops on Okinawa continue to advance in fierce hand-to-hand combat.
U. S. troops land on the northern coast of Mindanao in rear of the Japs and smash 4 miles inland.

12th 100,000 U. S. troops on Okinawa engage Jap troops in the bloodiest fighting since Iwo.
Allied new invasion of Northern Mindanao advances 6 miles.
Allied troops on Mindanao capture Del Monte airfield.
Australian 6th Div captures Wewak, on New Guinea.

14th U. S. Infantry capture Conical Hill and Yonabaru on Okinawa. Our AA troops shoot down 25 out of a force of 30 Jap planes attacking U. S. ships.

15th U. S. Pacific Fleet carrier planes bomb Kyushu and Shikoku in Japan. Hit 19 airfields and industrial targets.
U. S. Marines advance on Okinawa.

16th More than 500 B-29s again bomb Nagoya.
U. S. PT boats blast a secret Jap naval station on the east shore of Davao Gulf.

17th U. S. Marines establish a bridgehead across the Asato River and enter Naha, capital of Okinawa, in force.
Army Mustangs raid Atsugi airfield near Tokyo—destroy 42 Jap planes.

18th Bitter fighting continues on Okinawa.
B-29s again bomb industrial targets on the outskirts of Tokyo.

19th Chinese forces occupy Foochow, the great port on the east coast of China.

20th U. S. troops on Okinawa envelope Shuri. The 77th Inf Div repels 3 Jap counterattacks.

21st U. S. Marines continue to hold Sugar Loaf Hill on Okinawa in spite of bitter Jap counterattacks. U. S. 77th Inf Div captures Taira, north of Shuri.
Syria and Lebanon, asserting their independence, break off negotiations with France.

22nd Rain slows operations somewhat on Okinawa.
U. S. troops capture Mayalbalay on Mindanao.
Japs send long-range paper balloons carrying bombs against U. S. west coast area.

23d More than 550 B-29s bomb the industrial area of Shinagawa in Tokyo.
Allies capture Doenitz, Jodl, and 300 other members of the German High Command.
Prime Minister Churchill and his government resigns. Parliament to be dissolved June 15 and a general election to be held July 5, 1945.

24th Heinrich Himmler, Nazi archmurderer, kills himself by taking poison. U. S. Marines cross the Asato River and smash into Naha.
3 American divisions join forces along the Sayre Highway north of Malaybalay, bisecting Mindanao.

25th 500 B-29s again raid Tokyo. Lose 19 bombers.
U. S. troops in Mindanao capture Licanian airfield 15 miles north of Davao. Other troops capture Infanta and Misua on the east coast of Luzon.

27th Chinese forces capture the inland port of Nanning, in Kwangsi Province.
The Japs have suffered 378,427 casualties, mostly dead, in the Philippines campaign to date.
1,119 Jap ships sunk by U. S. submarines since the war began.
Field Marshal Robert Ritter von Greim who succeeded Goering as head of the German Air Force commits suicide by taking poison.

28th U. S. 6th Marine Div captures 2/3 of Naha on Okinawa.
Jap planes attack American shipping. Sink 1 and damage 12. Japs lose 77 planes.
B-29s bomb Jap's great port of Yokohama.
U. S. 25th Div captures Santa Fe and traps the bulk of Jap troops on Luzon.

29th Organized resistance in the Cagayan ends as 2 U. S. Divisions join forces in the Santa Fe Area.
Russia announces peacetime military training program of all 15 and 16 year old boys.

30th U. S. troops on Okinawa capture Shuri.

31st Generalissimo Chiang Kai Shek resigns as Premier in favor of Dr. T. V. Soong.
B-29s bomb Osaka, Japan's 2nd largest city.
U. S. war casualties up to a month ago totaled 1,002,887. 227,097 killed.

BOOK REVIEWS

REPORT FROM RED CHINA. By Harrison Forman. 242 pp.; index; maps and photographs. Henry Holt & Co. $3.00.

Last fall a few heavily censored dispatches from China told a bit of a visit by observers to China's so-called "Communist area"—the first such visit permitted in six years. Mr. Forman was one of that group. He was able to make maximum use of his time and facilities, for he is well grounded in the Far East: since 1930 he has lived there as explorer, author, and newspaper correspondent.

In this *Report* he gives the first impartial, full-length account of that visit. He had no axe to grind, no special sympathies for or against any party. His fresh material—and there is much of it—is therefore above any suspicion of bias. It is eye-opening.

Yenan has developed amazing production systems, education, and military training; results have been phenomenal. For the first time the Communist Party program is published—and it is apparent that collectivism is not part of it, so far as China is concerned. Several battle accounts are gripping; they are backed by official war maps brought out from the area, four of which are reproduced in the book.

Those are just a few of the highlights of Mr. Forman's book. Especially fine too are his summing-up of the attitude of the Communists toward the Kuomintang, and his explanation of the differences between the two parties.

THE BULLET'S FLIGHT: The Ballistics of Small Arms. By Franklin W. Mann. 378 pp.; index; illustrated. Standard Printing & Publishing Co. $6.00.

Dr. Mann's careful and exhaustive treatise was first published in 1909. Long out of print but still in great demand because of its exact analyses, it has been republished from the original plates.

Its scope is well indicated by the lengthy title-page notations: "The Bullet's Flight from Powder to Target. The internal and external ballistics of small arms. A study of rifle shooting with the personal element excluded, disclosing the cause of the error at the target. Illustrated with 188 plates showing the results of over 300 rifle experiments performed and chronologically arranged."

To the original text have been added two biographical sketches of the author, adding a human touch to this encyclopedic work.

THE DECLARATION OF INDEPENDENCE: The Evolution of the Text. By Julian P. Boyd. 78 pp. Princeton University Press. $3.50.

Two years ago this Press prepared for the Library of Congress a brochure which for the first time brought together in one place reproductions of all known drafts and copies of the Declaration of Independence in Jefferson's own hand. Along with them was a scholarly account of the evolution of the text of the Declaration. Dr. Boyd, librarian of Princeton University and historian of the Thomas Jefferson Bicentennial Commission, is general editor of *The Papers of Thomas Jefferson,* a monumental project now getting well under way.

That brochure is now made available to the public at large. This volume is a lovely piece of work, with large and graceful pages. Its content of course speaks for itself. Altogether this is a splendid volume for bibliophiles and students of our country's origin.

HAND CANNON TO AUTOMATIC: A Pictorial Parade of Hand Arms. By Herschel C. Logan. Standard Publications. $5.00.

Mr. Logan—recognized collector, arms consultant to the Kansas State Historical Society, and an artist by profession—has prepared a fascinating and unique volume. Its subtitle well describes it. Its "meat" consists of 172 plates showing in large size and great detail the development of hand guns from the 14th to the 20th century.

This technique shows much more detail than photographs could portray, especially of some of the older arms not in proper condition to photograph well. Enough examples appear so that one gets an excellent idea of developments and changes through the years. Typical pieces are shown, of course—but so too are a number of dual-purpose guns and other oddities. It is truly a comprehensive cross-section of hand arms' history.

Technical details are omitted: they are well covered in more exhaustive treatises. Emphasis is on showing and telling arms lovers and collectors, and even the layman, about the weapons themselves, their age and uses and fascinating sidelights.

AMERICAN EMPIRE IN ASIA? By Albert Viton. 308 pp. The John Day Co. $3.50.

If imperialism is to die, American isolationism must die with it. Post-war plans, including those for Asia, must be on a sane and factual basis; sentiment, emotion, fear for the future—these have no place. We want a world which will be at peace. The old adage has been reversed: we now know that in time of war we must prepare for peace.

Many of the post-war plans bandied about soar to dizzy heights of idealism or paternal imperialism that can never be realized. Most of them should never come to pass, for the sake equally of ourselves and our posterity, and of the "other peoples." Albert Viton here takes a shrewd look at Asia and the Asiatics, and sets up a standard of realism that is heartening. May his suggestions help influence decisions and actions.

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CHINA LOOKS FORWARD. By Sun Fo. 276 pp. The John Day Co. $3.00.

As the son of the late, great, and revered Dr. Sun Yat-sen, Dr. Sun Fo occupies a unique position. He can speak with more candor than most. And being president of China's legislative Yuan he is definitely in a position to have full knowledge.

In *China Looks Forward* he takes a bold look at the future. Clearly he is what he is reputed to be: an advanced social thinker, and very well read concerning the West's social and economic problems. He admires the achievements of the Soviets, but realizes that the route for China is that of a liberal democracy. Here he faces such questions as what to do about a beaten Japan; about Korea, Manchuria, and other parts of East Asia; about China's own internal development, and her relations with the United States.

Most of the book was not written for Western consumption. Most of it was translated from speeches, articles, and lectures intended for his own people. These integrate very well. To them have been added two long, new chapters concerning China's march toward democracy and her new constitution.

GUNNERMAN'S GOLD. By Horatio Bigelow. 128 pp.; illustrated. Standard Publications. $7.50.

Large and easy-to-read format. Lovely etchings and photographs of scatter-gun scenes. A warming introduction by Nash Buckingham. And a record of fifteen memories from experiences of fifty years. Those are the bare facts.

But they don't convey the "feel" of this true outdoorsman's book. Mr. Bigelow has wandered the country over in pursuit of his pastime, shooting. A gunnerman of the old school, he has ranged from the Deep South through the foothills and mountains of Virginia and Pennsylvania, to California and other parts of the Pacific Coast. From his shooting diary he has recaptured experiences that call for open-fire-and-pipe-smoke setting. But if you haven't that atmosphere handy when you read this limited edition book, you'll find that the text creates it for you.

GATEWAY TO ASIA: SINKIANG. By Martin R. Norins. 189 pp.; index; maps and photographs. The John Day Co. $2.75.

Sinkiang is a wedge thrust between India, Russia, and China proper. It was once quite definitely within China's sphere, but the war with Japan so occupied the central government that Sinkiang was left to shift pretty much for itself. Russian influence greatly increased here, as it did in Mongolia. Few visitors were allowed, so rumors replaced factual reports: it was even said that Sinkiang was practically a member of the U.S.S.R. More recently it seems that Russia has withdrawn her industrial and trade connections, leaving Sinkiang to the Chinese.

Sinkiang's importance stems from her geographic location, and from the richness and the undeveloped state of her resources. This province or dominion is actually China's "wild west." Its economic possibilities are vast, for both production and consumption. Mr. Norins has made an excellent up-to-date appraisal of Sinkiang's background and current situation. The introduction by Owen Lattimore is enlightening, too.

GLOBAL VOCABULARY. 152 pp. Global Publications. $1.00. LANGUAGES OF THE PACIFIC. 60 pp. Global Publications. 50c.

Covering in thumb-nail but useful fashion Spanish, French, Italian, Arabic, Japanese, German, Portuguese, Russian, Chinese, and Moro, this *Global Vocabulary* is of handy pocket size. It is "self-pronouncing," too.

If *Languages of the Pacific* were only of the same small over-all size, it would be much more useful. It includes Pidgin English (as used in New Guinea, the Solomons, and the Bismarck Archipelago), Polynesian (found in Hawaii and vicinity), Japanese, Spanish (for the Philippines), and Moro (the tongue of the Sulu Archipelago).

EASY MALAY WORDS AND PHRASES. By Marius A. Mendlesen. 64 pp. The John Day Co. $1.00.

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Thirty military and naval leaders, generally those most heard of rom the fighting areas, are pictured and briefly described in this ovely gift volume. It is printed in large, lush fashion, in distinct ontrast to the average book in these days of paper conservation. Mr. Chamberlain's drawings are superlative.

THE MONGOLS OF MANCHURIA. By Owen Lattimore. 291 pp.; bibliography; index; maps. The John Day Co. $2.50.

Nowaday the remark is frequently heard that the final battles gainst Japan will be fought on the plains of Manchuria. Regardless f the ultimate truth of such statements, Manchuria unquestionably s destined to be one of the world's most important areas. Reference o a map suggests that fact. Examination of Manchuria's resources, limate, and people confirms it.

Mr. Lattimore, extraordinarily well-versed concerning this region nd its peoples, has described every Mongol tribe living in Man- huria. The peoples and their histories are well covered. Consider- ble attention is paid to colonization. Not a new book, it is still nique in its field as an authoritative discussion of its subject.

SPLICING WIRE AND FIBER ROPE. By Raoul Graumont and John Hensel. 112 pp.; index; illustrated. Cornell Maritime Press. $2.00.

This latest volume off Cornell's press maintains the high standards f the firm's practical books. Its subject is thoroughly practical. So s the approach. Text is direct and plain. Illustrations are pains- akingly prepared and reproduced, whether as line drawings or pho- ographic half-tones. Terms are defined in a good glossary. And here's an index so you can find what you are seeking.

Its authors are the same pair of rope experts who compiled the stoundingly complete and excellent *Encyclopedia of Knots* recently eviewed here. That larger volume has a good chapter on this sub- ject—but this book is not just a reprint. Earlier material has been mplified considerably here, in the first complete book on this sub- ject of wire and rope splicing. Especially useful to men in the so- many fields using wire and cable are the directions for meshing and ocketing, and for rigging blocks and tackle. To give an idea of the cope of the treatment, there are 259 examples, 324 illustrations, and 7 plates. They do the job.

CHINA'S STRUGGLE FOR RAILROAD DEVELOPMENT. By Chang Kai-ngau. 326 pp.; index; maps and photographs. The John Day Co. $5.00.

Communications lines are the arteries of war, and of them all ailroads are perhaps the most important. Tactics to some extent and trategy to a greater, must be concerned with *supply*. Intelligent nderstanding of unfolding campaigns demands a knowledge of the ail network. And that is where Mr. Chang's book fits in.

He is well qualified for the task. From 1935 to 1942 (when ill ealth compelled his resignation) he was Minister of Railways or f Communications of the Chinese government. For 23 years before hat he was a banker, with much of his work the financing of China's xpanding railroads.

He has written a full account of the growth and development of his system. China's own efforts, the scramble among the Powers or concessions, construction itself with the whys and hows, and peration are covered. Especially fascinating (and useful at the pres- nt time) is the large amount of material dealing with preparations

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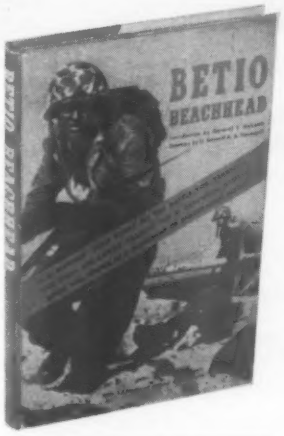

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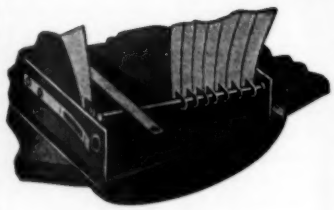

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for this war and the problems of operation, construction, and struction during the war itself. Indeed, this subject plus a for of postwar development occupies nearly half the text. Definit this is a "must" book for preparing mentally for events yet to o

SULEIMAN THE MAGNIFICENT. By Roger B. Merrim 313 pp.; index; illustrated. Harvard University Press. $3.50.

In the first half of the 16th Century the thrones of Europe w held by more first-line emperors than at any other time. Charle of Germany and Spain, Frances I of France, Henry VIII of E land, and the Ottoman Sultan Suleiman the Magnificent wer matchless quartet. The first three are well known. The last is o now being recognized by a proper biography by a non-Turkish h torian.

Suleiman was outstanding as both warrior and statesman. In 46 years of rule he carried the Ottoman Empire up to its peak power and prestige. He received a domain that curved around eastern Mediterranean, from Bosnia through what we think of Turkey on down into Egypt. His legions vastly extended his sph of influence: they pushed along the late road of the Eighth Ar and further—across Libya, Tunisia, and Algeria to Morocco; e ward they pushed through Mesopotamia to the head of the Per Gulf, and touched the Caspian too; the Crimea knew them, and t took most of Hungary and Romania and parts of the Ukraine. O can readily see, then, why Suleiman's influence on western poli was so great.

Prof. Merriam gives a graphic background picture of Suleim time, its life and habits and customs. He brings the man to l Most interesting to military men, however, is the fact that quite pr erly he writes principally of diplomacy and campaigns. That is story he has to tell, and he tells it exceedingly well.

THE IMPORTANCE OF LIVING. By Lin Yutang. 446 p index. The John Day Co. $3.50.

A few years ago Dr. Lin wrote this mature distillation on the of living. It looks at American life in the light of Chinese per tions and philosophy. So excellently is this done that the book i its 32nd printing.

The Importance of Living is too human to be called "philosoph too honest to be classed with "self-help" books. Its thesis is t there is so much more to life than achievement or amassing a f tune. Indeed, the most important thing about life is the fact living, itself. Life consists of enjoying ourselves and our friends neighbors, our homes and our travels, stars and trees, mere loaf This matter is written in a gaily serious vein, shot through wit sense of humor and comedy and backed by science, that brings the salt and tang of life. It is wholly delightful to read, and deser the widest possible circulation.

WHY MOTHERS GET GRAY. Cartoons by J. R. Willia Charles Scribner's Sons. $1.25.

Jim Williams is versatile, with his cowboy drawings, his machi shop scenes, the "Born 30 Years too Soon" series, etc. Then there the family group: the mother, her pre-adolescent boy, a 'teen-a daughter and a married one, and occasionally the father. It is true-to-life group, this—and so are its scenes and its squabbl comedies, and near-tragedies. A batch of the best of these cartoo comprises this book.

MY COUNTRY AND MY PEOPLE. By Lin Yutang. 423 p index; photographs. The John Day Co. $3.50.

Lin Yutang is a product of China. His roots go deep into past, but he is thoroughly aware of its present conditions and th implications. At the same time he is so well acquainted with West *mores* that he can interpret occidental or oriental to the other terms that will readily be understood.

In *My Country and My People* Lin has written what experts the orient consider the finest book on China in the English la guage. It covers the fundamentals: the people, their character, h their minds work, and their ideals. Life is discussed under headi of woman's life, social and political, literary, and artistic life,

e art of living. This latest edition also discusses the Sino-Japanese ar.

Not a brand new book, this one makes no pretense of being a reathless, up-to-the-minute quickie. It is written with perception, nd a penetrating understanding of both eastern and western civiliza- ons.

OW OUR ARMY GREW WINGS: Airmen and Aircraft Before 1914. By Col. Charles deForest Chandler and Brig. Gen. Frank P. Lahm. 320 pp.; index; illustrated. Ronald Press Co. $3.75.

It's a good idea once in a while to pause, look back, take stock. pecially in so rapidly changing a field as aeronautics is it both wise nd pleasant to review the origins of the art. Few men are so well ualified to write of the "early birds" as are these two authors: ol. Chandler was the first army officer detailed to aeronautic duty, en. Lahm was the army's first airplane pilot and first airship pilot. hey had a large part in the making of the history of which they now rite. The story itself is fascinating, and to it these officers bring ot only an authentic telling but also those accurate facts—names; ates; figures of speed, altitude, horsepower; contracts; specifications; c.—which mark the difference between "another book" and a assic such as this.

ARS I HAVE SEEN. By Gertrude Stein. 259 pp. Random House. $2.50.

Miss Stein's account of wars she has seen reflects unusual powers of bservation and an ability to weave small fragments of intimate daily fe on the French home front into a significant picture. The sense f her statements, however, is so obscured by her peculiar style of riting that it is hard to imagine popular acceptance of her book.

After a time, if the reader stays with it long enough, the Steinesque anner yields a little to the sheer interest of the subject. The ac- ount of life in France during the four eventful years from 1940 is ompelling and, in its way, remarkably penetrating. F. E. J.

REEDOM SPEAKS: Ideals of Democracy in Poetry and Prose. Selected by George F. Reynolds and Donald F. Connors. 264 pp.; index. Ronald Press Co. $2.00.

"Democracy" is a word that has been so bandied about that it metimes seems to have lost meaning. It is a favorite of dema- ogues, who have tried by its use to justify any pet project-of-the- oment; they have tried to force adoption of ideas by labeling libeling?) all opponents as anti-democratic.

"Democracy" does have a meaning, though. It has had it for a ng, long time. Probably the meaning began 'way back in the days efore writing. Certainly there is a very respectable body of magnifi- nt literature on the subject, dating from the days of the Greeks nd the Hebrews.

In this anthology have been brought together some of the finest of ese writings. They are drawn from the time of Thermopylae to e present war. Together they bring depth, perspective, an inner nse and feeling of what democracy can and should mean. They re arranged under ten general headings, including the basic ideas f our civilization, man's wonder and mystery, the individual's worth nd dignity, the need for belief in equality and for tolerance, for free- om (and vigilance in maintaining it), for cooperation.

CARNE ON DICE. By John Scarne with Clayton Rawson. 413 pp.; index; illustrated. Military Service Publishing Co. $2.50.

Remember the articles in *Yank* on crooked dice and crooked cards? emember how clearly and completely they showed what to watch ut for when playing with strangers (or even with "friends")?

Those were prepared by John Scarne, arch-manipulator of cards nd dice and a man who is all-out for the soldier and sailor. After he *Yank* articles he made hundreds of appearances at posts and sta- ons, telling the boys what the score is, showing them the same, nd answering their questions.

Now he has written an exhaustive and fascinating book on dice one, in which he covers rules, odds, big and little games, cheaters, ooked dice and method. His whole purpose is to help expose the

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THE MILITARY STAFF: ITS HISTORY AND DEVEL MENT. By Lt. Col. J. D. Hittle, USMC. 188 pp.; bibl raphy; index. Military Service Publishing Co. $2.00.

Col. Hittle has written one of the most important military b of recent years. Its perusal is a "must" for every officer. It sh be in every military library, personal or official.

For the first time the history, development, and present form the military staff are comprehensively treated. Much research hard work were involved. The result is a splendid account of evolution of the staff. More than that, we have here a clear pic of the current German, French, British, and American staff org zations. These differ greatly in form, although all have the s purpose—that of assisting the commander in the exercise of c mand. Their comparison is a valuable feature in itself.

CIVIL LIFE IN WARTIME GERMANY: The Story of Home Front. By Max Seydewitz. 440 pp.; index. The Vi Press. $3.50.

Onetime a member of the German Reichstag, the author of book has lately been a self-exile in Sweden. There, just across Baltic from his homeland, he could hear German broadcasts, r German newspapers, communicate with underground leaders in G many, follow public opinion. He has assembled into logical orde mass of material ranging from business and profits, through fore slave labor, to last summer's officers' revolt. Much of what he has appeared in the press or hinted at therein, but this is a g synthesis of Germany's internal picture from the start of the wa

WARTIME RACKETEERS. By Harry Lever and Joseph Yo 226 pp. G. P. Putnam's Sons. $2.75.

Far from stopping rackets, war time brought new opportun for fertile but perverted brains. Government agencies (Jus Treasury, FBI, FTC, OPA, etc.) have been alert to squelch th most are short-lived, but new perpetrators keep cropping up. F government files the authors have drawn material for this story illegal schemes and swindles. They range from impersonation service people to contract frauds against the nation; from bl markets to faked working hours in war plants. This book is b good entertainment and a clear-cut warning of the many tricks citizen may be subjected to.

TOURIST UNDER FIRE. By Thomas E. Healy. 301 pp.; paper maps. Henry Holt & Co. $3.00.

If Mr. Healy wants to consider himself a "tourist," I supp no one should complain. Actually, though, he has done an standing job of front-line war reporting. He had two years of then was severely blitzed in London in '40. After a long conva cence he headed for Burma, where he covered the retreat of Bri and Chinese forces; that story forms nearly half this book, an extremely timely now—the contrast between current events those of three years ago is almost unbelievable. From the g tank battles of El Alamein he followed the British Eighth A across Egypt, Libya, and Tunisia. Everywhere he insisted on ing the action itself. He eluded conducting officers to get the possible story. And "story" means "people," to him.

This is not an "I dunnit" book. It is one written from an unu point of view, one which will last through the years because of perceptiveness, perspective, and sense of balance.

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